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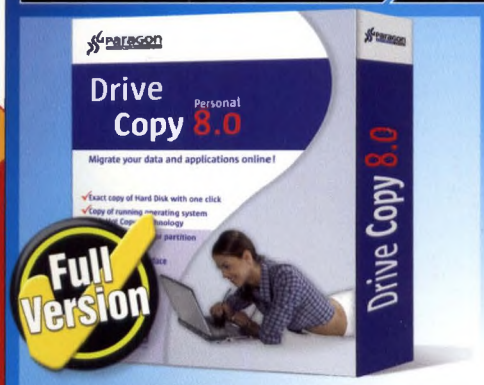

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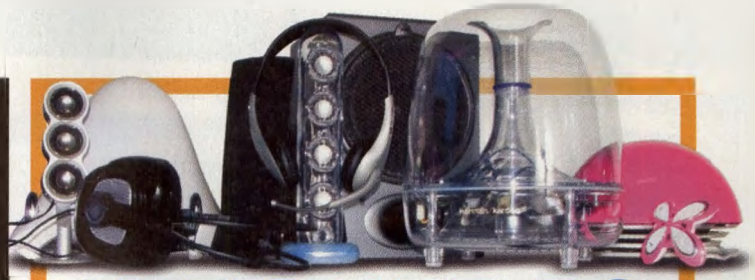

ULTIMATE PC SOUND GUIDE

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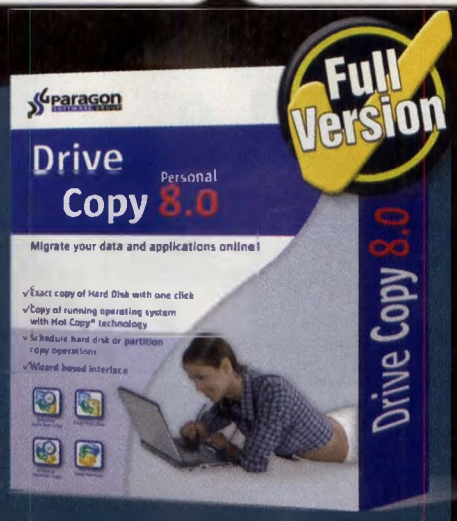

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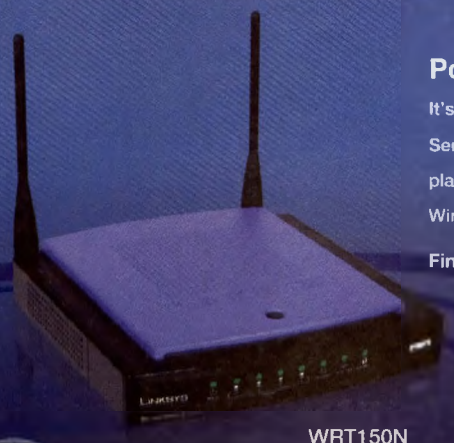

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editorial

TONY SARNO

The review of Nokia's amazing N810 Wi-Fi internet tablet (page 40) made me think about the obsession with trying to cram desktop functions onto hand-held devices. The Linux-powered N810 is the pick of mobile devices for surfing the net. But why are we getting so excited at seeing web pages on a tiny 4.13in 800 x 600 display, even if the device is mobile? It's got the same kind of pointlessness as me trying to work on a large spreadsheet on a BlackBerry. I can understand the power of the BlackBerry in keeping you permanently in touch with email, phone, instant messaging, SMS and so on — but using one of its micro office suites is a joke.

Last year I was taken by the idea that I could not only organise my life with a handheld, but do most of my work with it as well. With my Wi-Fi-enabled Palm Tungsten I spent many hours working on documents within range of the wireless router at home, in hotspots in capital cities, and even parked in the car. I'd convert desktop documents for use, then convert them back, and constantly sync my Outlook data back and forth. It was laborious, but not as time-consuming as trying to input and edit data with Palm's Graffiti handwriting recognition software (a folding keyboard would have defeated the purpose of carrying my work in my pocket). I never quite understood the futility of trying to live life out of an organiser until my Tungsten was stolen at a major IT industry function one night.

I went through a brutal withdrawal period, in which I missed appointments, was late for meetings, forgot to pick up the kids from swimming and generally felt irredeemably dysfunctional. But by the end of the first week without my device, I also started to enjoy not having one. It was a surprisingly liberating experience. I didn't miss the calendar or task list alarms going off every couple of minutes. But mostly, I was relieved at going back to using Office documents on my PC — and on a normal keyboard.

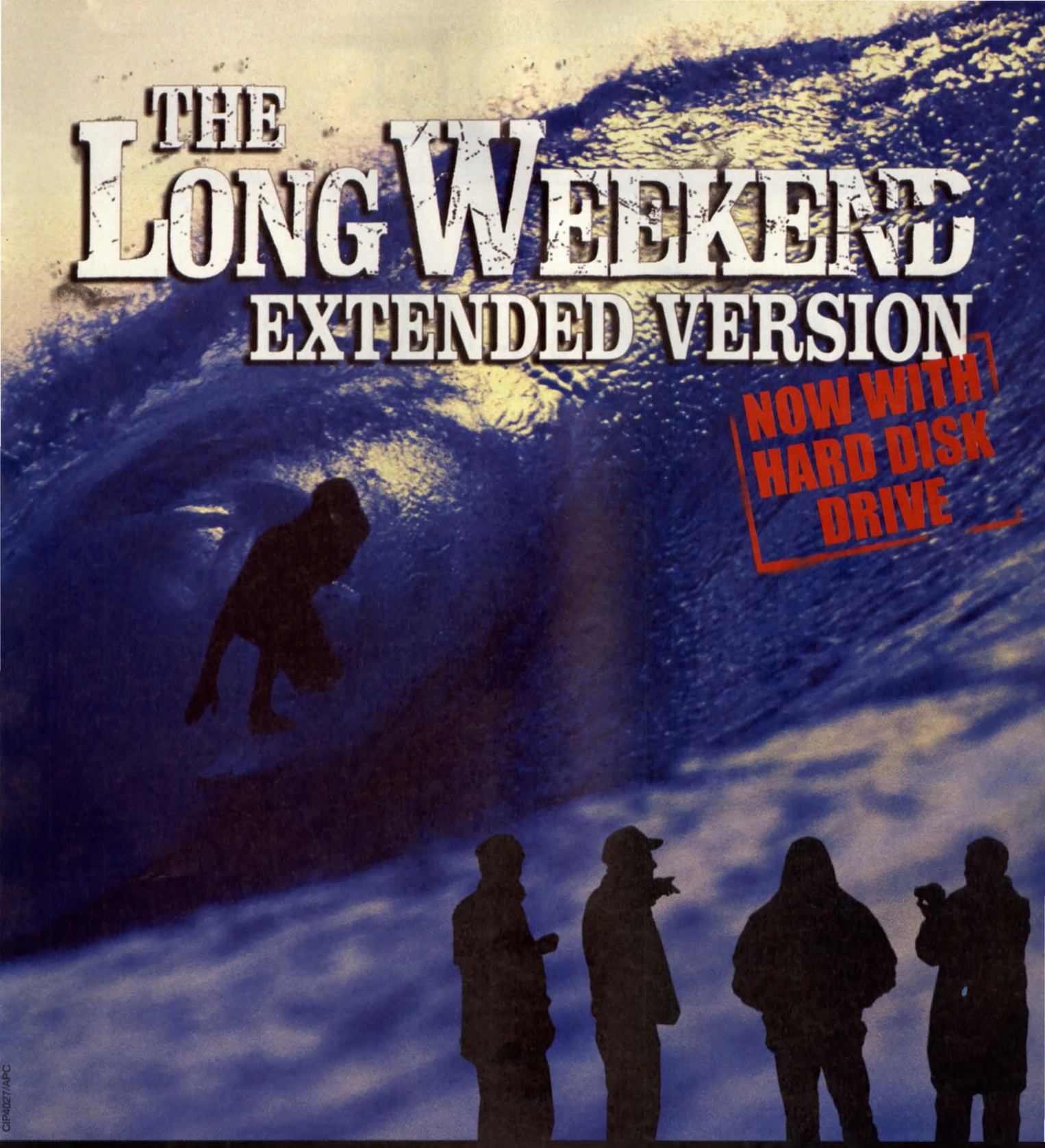
Astonishingly, I lasted nearly a year without a handheld. But recently I needed a new phone and it made sense to get one that also incorporated always-on email. I got myself a BlackBerry Curve, and after a couple of days with it, it was easy to see why the devices are so popular. The wireless always-on email keeps you in touch at all times but can be conveniently ignored when necessary. The instant-messaging client (I use Jive Talk) enables me to hold IM conversations that are normally crippled by the corporate firewall. And the integration with Facebook means there's yet another way of staying in touch with my social network.

But this time, no office documents. I'll use the BlackBerry as a wireless personal communicator and I'll leave documents and applications to something bigger, like a PC.

tsarno@acpmagazines.com.au

I NEVER UNDERSTOOD THE FUTILITY OF LIVING LIFE OUT OF AN ORGANISER UNTIL MY TUNGSTEN WAS STOLEN

JANUARY AWARDS



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Advancing programming

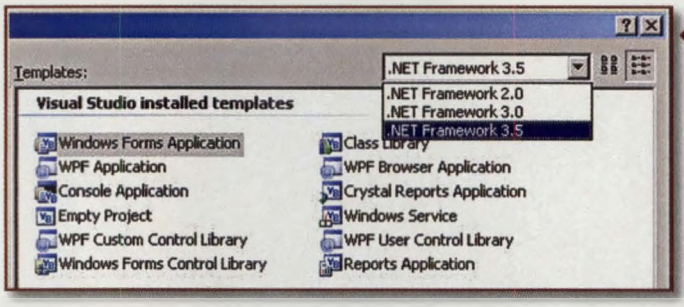
Microsoft's new Visual Studio 2008 is a boon for programmers, writes *Anthony Borton*, a programmer himself.

When word started filtering through the blogosphere last month that Microsoft's Visual Studio 2008 was available for download from the MSDN subscriber download site, the Microsoft servers hosting the VS2008 downloads averaged a download rate of about 10GB/s, showing the interest in the new version of Visual Studio, Microsoft's professional programming tool. There are several new standout features in Visual Studio 2008:

LANGUAGE INTEGRATED QUERY

Visual Basic 9.0 and C# 3.0 have been enhanced to support the new Language Integrated Query (LINQ) that's included in .NET Framework 3.5. LINQ uses a single model to query and transform XML, SQL Server and object data. It has the potential to change the way programmers access all manner of data: Objects, XML, relational databases and, soon, entities. Here's an example of a new LINQ query (with full IntelliSense in the IDE):

```
var outOfStock =
from p in products
where p.StockLevel == 0
select p;
```



There's a lot of interest in the new version of Microsoft's Visual Studio.

AJAX SUPPORT

VS2008 now allows programmers to develop richer, more responsive web apps through its full support of ASP.NET AJAX. In VS2005, you needed to download ASP.NET AJAX separately and additional controls. In VS2008 this is all out of the box and integrated seamlessly into the VS2008 environment.

While IntelliSense support for Jscript and ASP.Net AJAX might seem a strange thing to include in a list of standout features, it's really a great productivity and learning feature. For experienced Jscript and ASP.NET Ajax users, IntelliSense is a productivity aid as it saves programmers countless keystrokes by simply completing their code for them. For novice users or developers looking to learn these two features, IntelliSense is invaluable in showing the properties and methods available as coders type. A great way to learn as you go.

SUPPORT FOR WINDOWS PRESENTATION FOUNDATION APPS

WPF allows programmers to create new user interfaces for applications. While WPF was released some time ago with .NET Framework 3.0, VS2008 takes things much further by including a much-improved visual designer and WPF project templates out of the box. Creating your WPF applications (XAML) and WPF Web Applications (XBAPs) is now much easier.

PROJECT DESIGNER MULTITARGETING SUPPORT

One of the issues developers faced in moving from Visual Studio .NET 2002/03 to 2005 was the fact that they were required to upgrade their project to target .NET 2.0 at the same time because VS2005 could not create or edit projects targeting earlier framework versions. In VS2008, this has changed. Programmers can now select the specific framework they wish to target when they create their project. Options available include .NET Framework 2.0, 3.0 and 3.5. Depending on the framework version they choose to target, the list of available project templates changes. So, if you choose to target 2.0, you won't have the option to create WCF, WPF or Silverlight projects.

This all means programmers can upgrade to VS2008 while continuing to develop and edit projects that currently use .NET Framework 2.0. A potentially significant hurdle to upgrading has been removed. Visit **http://msdn.microsoft.com** for more information. Download the free Express editions of Visual Studio 2008 from the Visual Studio 2008 Express Developer Centre at **www.microsoft.com/express**.

WHY VISUAL STUDIO 2008 IS A MAJOR MILESTONE FOR MICROSOFT

Microsoft's Finula Crowe, the product marketing manager of Developer & Designer Tools says the new Visual Studio 2008 "is a very significant release for Microsoft, delivering more than 250 new features in addition to enhancements to existing functionality. It lets developers be more productive by providing a single approach to querying and manipulating data that is integrated within the programming language. "

She also points to the Language Integrated Query (LINQ) feature, (see main story) and enhancements to user interfaces as key innovations. "The Visual Studio 2008 enables you to not only share user interface assets, such as design elements and controls, with graphic designers more effectively, but also enables you to employ some of the latest web user interface techniques, such as AJAX/JSON support, new ASP.NET controls for better page management and templates, and native support for RSS and REST by the Windows Communication Foundation. We like to see Visual Studio 2008 as a sort of 'olive branch' between the Designers and the Developers!"

OPEN MOBILES MOVE FORWARD

Greenphone pulled from shelves; advanced successor emerges.

Trolltech, manufacturer of the Qtopia Greenphone, has pulled the open source device from shelves. The handset, which launched only last year, has been discontinued as Trolltech believes another device, the oddly named Neo1973, can fulfil its purpose. "Trolltech is not really a hardware company," offered Trolltech CTO, Benoit Schilling. The Greenphone was touted as the first phone with a fully user-modifiable firmware, heralding a quiet revolution of programmers dedicated to making the portable experience better.

Trolltech offered its full support for FIC's Neo1973 earlier this year, and it's not hard to see why. Running a touchscreen platform at VGA resolution, the Neo1973 — a mass market version of which should be hitting the shelves right now — goes right up against Apple's iPhone in terms of specification. Although hardware problems have apparently slowed its launch, the Neo1973 has a hardware specification that will be appreciated by open source developers, including integrated GPS and a 2.5GB wireless radio.

The big difference, it seems, is in attitude; while Apple tries to make sure its platform is bug-free and unsullied by possibly terrible third-party applications, Trolltech, FIC et al are attempting to open the phone to those who want to improve it. Sean Moss-Pulz, head of FIC subsidiary OpenMoko, said: "We absolutely, passionately, believe that something as fundamental to our lives as the mobile phone must be open."

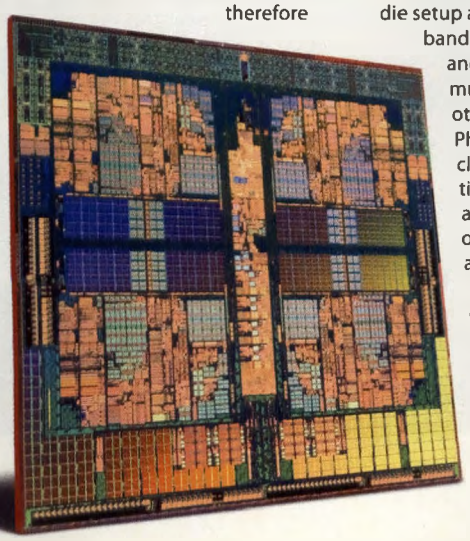
OpenMoko is currently in the process of being spun off into a separate company from FIC. By next year it aims to have three open phones on the market. The big question — whether the mobile phone market really needs an open source platform — is likely to be answered by then.

AMD quad-core desktop is go

Can a Barcelona-based chip match Intel's latest 45nm quad-core killer?

With AMD's quad-core PC processor finally shipping in Opteron server trim, attention turns to the long-awaited Phenom desktop derivative.

Due out before the end of the year, Phenom is based on the very same quad-core CPU architecture as the latest Barcelona Opterons. Headline features for Phenom therefore include 463 million transistors packed into a single 65nm processor die. Significantly, the single-die design makes Phenom the first 'native' quad-core PC chip. Intel's existing quads, it's well known, are really composed of a pair of dual-core dies crammed onto a single CPU.



The implications of the single-die setup are clear: improved bandwidth, reduced latency and therefore superior multi-core scaling. In other words, a quad-core Phenom promises to get closer to delivering four times the performance of a single-core chip, based on the Intel's Core2 quad's architecture.

So, the crucial question is just how quick is each of the Phenom execution cores? Architecturally, the release of Barcelona means Phenom's internals are an open book. The five mile view reveals a chip that is clearly a development of AMD's existing K8 design, as first seen in the Athlon 64 in 2003, rather than an all-new design.

But if much is familiar, AMD has also massaged just about every part of the chip for more clock-for-clock performance and greater power efficiency. Perhaps the most significant upgrade for the desktop environment is full 128-bit SSE instruction handling. That's a feature that Intel already offers on its Core 2 chips, so is something of a must for AMD. In any case, it should deliver a juicy boost for multimedia use, including HD video decoding, video editing and image editing.

Other enhancements include improved instruction fetch and branch prediction. DDR2 remains AMD's memory weapon of choice, and the first Phenoms will be backwards-compatible with current AM2-socket motherboards.

As for cache memory, each of Phenom's cores sports its own 512K L2 pool, with a further 2MB in a shared L3 store, again just like Barcelona. That's pretty small beer compared to the 12MB that Intel crams into its latest 45nm quad-core chips. But Phenom's high level of feature integration, including the on-die memory controller and I/O, means it simply doesn't need that quantity of cache.

Exactly how Phenom stacks up against Core 2 will largely depend on clockspeeds. Early Opteron quads have not impressed in that regard, topping out at just 2GHz. As yet, AMD hasn't revealed launch frequencies for Phenom, but the thick end of 3GHz will be absolutely essential if AMD wants to keep Intel honest on the desktop. That said, AMD's recent announcement that triple-core variants of Phenom will be made available could make for some interesting competition if priced to compete with dual-core Intel processors.

WHEN WINDOWS CRASHES

You'd think Microsoft would do something about that Blue Screen of Death, especially given the exposure it's getting. As we reported on APCMag.com recently, BSOD sightings have sprung up all over the Flickr photo sharing site, including a beauty on the side of a department store in Toronto Canada. Not only was the Windows crash in full, giant-size view for all to see, but pedestrians got their dose of BSOD pain via not one, but four huge screens.

As we pointed out on the *APC* site, you've got to wonder why Microsoft doesn't clean up its act with a friendlier approach, like, say, Apple. Are we being too harsh?

Not everyone agrees. Some readers on our site indicated a sentimental attachment to the BSOD. Others said they'd prefer the technical data dump to a vague reboot message. Your thoughts? Send suggestions and BSOD sightings to *apcmagazinefeedback@acpmagazines.com.au*.

Want to nominate a dumbest moment in tech? Send an email with the subject line "Dumbest Moments"to ***apcmagazine feedback@acpmagazines.com.au.*** All correspondence becomes the property of *APC*.

Linux penetration **on the rise**

Windows-based systems being replaced globally by cheaper, open source OSs.

UK
The Department of Government Commerce's 'Open Source Software Trials' report finds that Linux-based servers are greener than Windows systems. It says open source systems require less memory and a slower processor for the same functionality, meaning lower power consumption. There's less waste because the hardware requires a less frequent refresh – six to eight years, against Windows' three to four.

GERMANY
Currently supporting 300,000 students in the states of Bavaria and Thuringia, Novell has now been picked by North Rhine-Westphalia to supply its IT infrastructure. The contract means that Novell's Suse Linux Enterprise Desktop 10, Suse Linux Enterprise Server and other Novell software will all be deployed in the region. Forty per cent of German students already use Linux, according to Novell.

RUSSIA
Acting Minister of Communication Leonid Reiman announced 750M roubles backing for a Russian Linux distribution development. Tests start in 2008 in three regions, and the aim is to install Linux on all school computers by 2009. Many see this as a resolution to the rise in numbers of pirated Windows licences in educational institutions. The only alternative was to pay Microsoft the fees required.

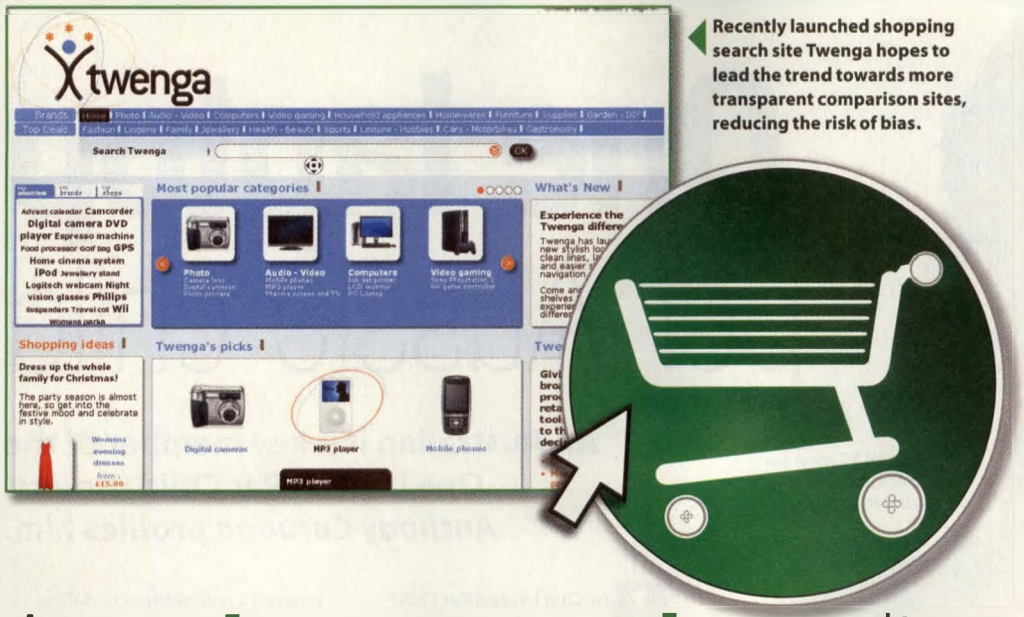
USA
The US government, already running a large proportion of its systems on Linux, has offered further backing to the platform by giving Red Hat GNU the highest possible clearance, 'EAL 4 Augmented with ALC FLR 3'. This paves the way for its use in the military and National Security Agency. Sales will increase thanks to military expenditure and purchases from contractors requiring the platform.

JAPAN
Oracle is spearheading a consortium with NEC and IBM to sell servers and systems running Linux in Japan, in response to new procurement guidelines which took effect this year promoting the use of open source Linux systems in government. Officials oppose reliance on Windows technology because it offers less freedom in systems development and Windows code cannot be disclosed.

VENEZUELA
Earlier this year President Hugo Chavez launched Bolivarian Computers, a suite of four models running Linux. Harnessing Chinese technology but produced in Venezuela, the computers are expected to be used by the government along with state companies and institutions. So far the Urban Transportation Fund, the Agrarian Bank and the national mail service, Ipostel, have all received systems.

SOUTH AFRICA
The country's cabinet has approved a policy to install Free and Open Source Software (FOSS) in government. This strategy is widely expected to reduce administration costs and enhance the IT skills of those using the new systems. In April a project office was created by the science and technology department to ensure that there were no problems with the country-wide implementation of FOSS.

INDIA
Taking advantage of the more expansive use of open source in the country is Delhi-based Linux VAR Indserve Infotech. It's developed both training for resellers and a honed program for first-year university students with the goal to make them more employable. It is estimating massive growth once the Indian government realises that there are great savings to be made by using Linux.



Recently launched shopping search site Twenga hopes to lead the trend towards more transparent comparison sites, reducing the risk of bias.

Are **price comparison** sites giving us the **best deal?**

Accusations of vested interests and bias lead to calls for product search and price comparison sites to be regulated.

Whenever you go shopping online, a comparison site will almost always play a part in your pricing research. In fact, a recent poll of 2,010 adults conducted by YouGov found that 45 per cent made a buying decision with the help of these sites. But how do they come up with their final lists, and can they be trusted to provide you with the best possible deal? Recent reports imply that they may not be as trustworthy as they might at first seem.

Unlike some areas of business, price comparison sites are not legally required to divulge their sources of income. This potentially leaves them open to favour one vendor over another. All comparison sites claim to provide free, impartial buying advice, thus aiding competitive pricing. But in reality they all have commercial interests — otherwise it just would not be profitable to run the sites in the first place. This is usually in the form of per-click commissions for bringing in customers, which provides an incentive to promote vendors paying higher levels of commission over others.

Price comparison sites are a very lucrative business, and it's a growing market. The problem of bias is particularly acute with certain types of comparison, where the product itself is more opaque. Finding pricing for a particular TFT model, for example, mostly consists of base price plus postage. The product itself will be identical in every case.

But shopping for a mortgage or insurance policy could easily find you missing that all-important small print. When comparison sites use phrases like 'best buy' and 'editor's choice', the assumption is that this is unbiased advice based on weighing the pros and cons of a given service. But it could just be the vendor with the biggest wallet.

A NEW APPROACH

Fortunately, the fight back against potential bias has begun. More generally, a recent report by the Resolution Foundation (**www.resolutionfoundation.org**), an independent research and policy organisation, is calling for a voluntary code of practice among price comparison sites.

So how would such a code of practice actually work, and what would it mean for consumers? It would ensure that sites showed up-to-date information and prices, disclose how much of the market is covered by a given site and provide detail on any commercial relationships with product providers. This is already the case with industries that are more heavily regulated, such as the energy industry.

From a buyer's perspective, a code of practice could only be a positive thing, as it would provide assurance that the advice you were being given was impartial and that you're getting the best deal. But sites which are making a lot of money out of favouring one vendor over another may not be so happy, making the current push for a merely voluntary code less reassuring for users.

THE (A)PC REVOLUTION

January 1986

VCR DATA STORAGE

If you think your video cassette recorder is good only for watching classics from the silver screen or taping less-than-classics from TV, think again. Alpha Microsystems of California has developed a way for VCRs to make backup copies of data stored on a PC's hard disk. . .

Standard video cassettes can be used to hold up to 80MB: about four times what most PC hard disks hold. Best of all, the VCR can be set to record data automatically — the same as it does with a TV show.

IT'S THE SINCLAIR

Back in 1986, Steve Jobs wasn't the only design genius on the tech scene. We also had Sir Clive Sinclair, a man "who invented the digital watch and the pocket calculator".

The Sinclair QL was Sir Clive's entrant in the home PC race, and with 128KB memory and an internal micro drive for $799, it was nothing to be sniffed at. Also, the ad featured a pixely image of Clive in shades of green.

VOICE MASTER

The Voice Master was a "$149 speech digitiser for the Commodore 64 that's claimed to reproduce sounds with almost absolute fidelity. . . By selecting one of the sounds and humming into the microphone, you can create a simple melody using one instrument."

One laptop per Aussie child

Aussie OLPC member and computer systems engineer, Joel Stanley.

An Australian is a key member of the One Laptop Per Child project. *Anthony Caruana* profiles him.

The One Laptop Per Child (OLPC) project aims to build a portable computer that'll cost just US$100 and be made available to children in poorer nations. At the moment, the units cost about US$188, but as production ramps up over the next couple of years the cost is expected to fall as the components become more commoditised.

The XO is the name of the laptop that OLPC will be shipping to many countries. Adelaide computer systems engineer Joel Stanley has lent some Aussie know-how to the XO. After making contact with some of the OLPC team at Linux.conf.au, he entered a competition to define an early version of the XO. He was one of two winners (he now has a bookshelf filled with various iterations of the hardware).

He was offered an internship at OLPC headquarters in Cambridge Massachusetts, which he immediately took up. Ironically, Joel had also applied to be a part of the Google Summer of Code program in which promising students are paired up with mentors to work on open source projects. He got into that too, and he's doing it remotely.

Joel's journey to Cambridge included a detour to Romania where he presented some of the technical aspects of the XO to members of the Romanian government, who ultimately made a significant commitment to buy a clutch of XOs (see 'Half a laptop per child', on XO sales so far, right).

Joel says that the OLPC project has changed the world. One of his "shiver down the spine moments"

One of the special OLPC moments for Joel was seeing kids learn how to use the XO.

was when a member of the OLPC team was teaching kids in an African country how to use the XO.

"Children learned how to fix the laptops by themselves," Joel says. "At one school, both teachers called in sick and the principal couldn't find a replacement. All the kids still came to school even though class was dismissed for the day. It's amazing. I can't think of anything else that'd make kids come to school like that. To make kids so excited about education — the sky's the limit".

Joel showed *APC* the XO. In bright green-and-white plastic, the XO is an attention grabber. After flipping up the two rabbit-ear tabs that double-up as the wireless antennas, you're confronted by a 7in 1,200 x 900 colour screen. To conserve power, the backlight can be dimmed. When the backlight is completely powered down, in bright sunlight the screen becomes a crystal-clear black-and-white display — a clever innovation for a device that's likely to be used outdoors. Joel says that the readability of the screen in sunlight allowed him to read PDFs while studying for his final uni exams.

The keyboard, while a little undersized for adults, has the usual QWERTY arrangement with a row of function keys that are programmed for a variety of customised functions such as direct access to the home screen and controlling the brightness of the display's backlight.

Running a version of Fedora Linux, the XO packs 1GB of flash memory, Wi-Fi, a SD/MMC memory slot and three USB ports. There's a VGA camera built into the screen bezel that lets students video-conference and teachers record messages for parents and carers who might be illiterate.

As it's unlikely that the XO will be used in places with wireless LANs, it runs a draft version of the 802.11f standard that's been configured so that when multiple XOs are close to each other they automatically form a wireless mesh network. This makes it simple to share files, chat, collaborate on documents and even share an internet connection. If one computer in the mesh network has internet connectivity, all the others can share it without any configuration whatsoever.

In order to maximise battery life, the XO has had to make a couple of important compromises. Firstly, the CPU is an AMD Geode LX-700 with a clock speed of 433MHz. While it's not going to break any speed records, it's certainly good enough to do a basic job. Applications took a while to start, but once they were up and running they were quite responsive. Also, by sticking with flash memory, not only is the XO more robust but it doesn't chew through power by keeping hard disk platters spinning.

Battery life is rated at about four hours, but we weren't able to validate that with the pre-production units we tested. However, given the small screen, low-power CPU and use of flash memory, this looks to be well and truly achievable. Of the XO's power management, Joel says, "Because it's an open source stack from top to bottom, from the firmware to the GUI, it's been tweaked specifically for the hardware. The goal is to be able to power up and down between key-presses so that power is conserved while you're thinking about what button to press next."

The XO has pioneered a number of technologies that'll eventually make their way into mainstream computers. The mesh networking pioneers the use of the 802.11f standard. The display technology is likely to be licensed by other manufacturers and the use of solid-state memory at this price-point breaks new ground. "All the technology could be put into a different form factor that'd be perfect for business people," Joel says.

When asked what he'd change, Joel says that he'd like to see a touchscreen in version 2. He tempers that by saying that "the XO is a pretty awesome system. The keyboard allows touch-typing, the screen's amazing, the wireless is amazing, and the speed is fast enough to do most things." Not bad for a machine that aims to sell for US$100. APC

Half a laptop per child

OLPC project gets off to a shaky start.

The One Laptop Per Child project — which is due to start producing hardware by the end of the year — has not yet been the success that founder Nicholas Negroponte had hoped. The project's aim is to produce a low-powered laptop — currently dubbed the XO — suitable for the developing world, and it was hoping to partner with governments and educational establishments to facilitate the unit's distribution and sales. The ideals were noble but, in practice, things haven't happened.

Despite early reports from the system's contracted manufacturer that seven nations had committed to orders of over one million units, we're getting reports at press time that only one order has actually been confirmed, a 100,000 unit shipment to the government of Uruguay. The gaudily-coloured OLPC — originally lined-up as the $100 PC — has already seen its price double in its two years of development, which has surely soured many potential purchasers of the system. Even if you were interested in getting one for yourself, the XO's two weeks of public sales — sold under a charitable 'Give one, Get one' banner — will have ended by the time you read this.

The OLPC project is no longer alone, either. ASUS' publicly available EEE 701 has made a huge impact despite its relatively low power; Intel is priming its excellent and slick-feeling Classmate PC for launch; a number of projects are active in China and the Far East, which is perhaps the most lucrative and emerging market a low-cost PC could enter into right now. The XO has some brilliant features, and what look like some quite significant technological advancements, but it's going to be entering into a busy market.

Perhaps that saturation is the key. Although the OLPC project will be taking a hit on its overall sales thanks to the proliferation of similar devices, it's likely that the best device in the field will rise to the top eventually. Out of all of the low-cost units out there, the XO shows the most innovation and perhaps the most promise in terms of design.

Its screen is a hi-res display visible both in a backlit mode and in direct sunshine. The XO uses an innovate mesh networking scheme, allowing machines to connect and share resources like web connections, and the machine consumes on average 2W. There are accessories available to charge the Lithium Ferro-Phosphate battery via a pull cord mechanism or solar power, meaning the laptop should be viable even in countries where a stable power source is hard to find.

Only **fools** rush in

Windows Server 2008 is just around the corner... what are the implications for Windows Vista deployments?

For those of you who haven't gone down the path of deploying Windows Vista yet, there's a potentially very good reason why you should wait a little bit longer. Windows Vista sports a whole range of new features, and two very important ones are SMB 2.0 and the Next-Generation TCP Network Stack. SMB (Server Message Block) is Microsoft's network file sharing protocol, and has been for quite some time, up to and including Windows XP/Windows Server 2003. SMB 1.0 uses a progressive write request/write response mechanism, waiting for each step to complete before moving on to the next one. SMB 2.0 handles multiple requests/responses simultaneously, making better use of available bandwidth and achieving much higher data throughput.

The Next-Generation TCP Network Stack has been re-written from the ground up. It's designed to do a whole host of things, such as dynamic bandwidth optimisation, automated tuning of the TCP receive window size and advanced congestion control.

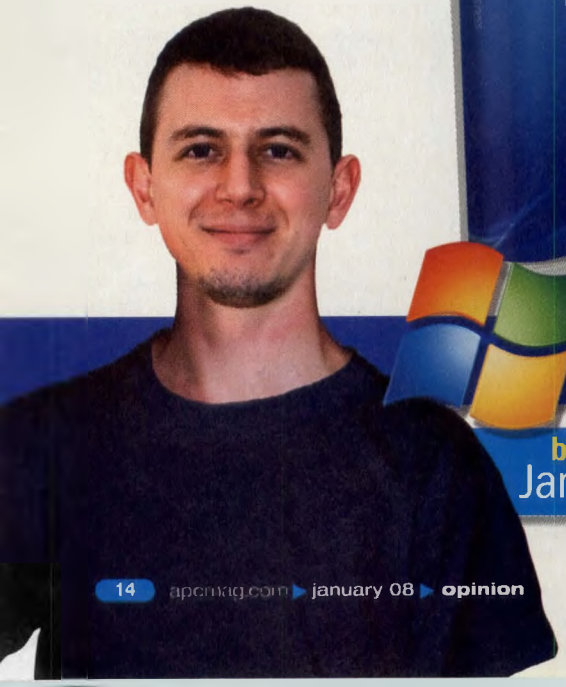
All these things are excellent and innovative, but they're only supported on Windows Vista and Windows Server 2008. As with most networking technology, both ends of a network communication have to support the same protocols in order to benefit.

This has a major implication — Windows Vista runs best in a Vista-only environment (or Vista plus Server 2008). A Windows Vista machine in a Windows XP/Server 2003- dominated environment functions about as well as an XP machine, and sometimes not even. Microsoft's own Windows Server 2008 performance benchmarks demonstrate very impressive gains in data throughput and shell interaction over both high-speed LAN and high-latency WAN connections when the end nodes are Windows Vista SP1 and Windows Server 2008, but only marginal (if any) benefits when one of the end nodes is Windows XP or Windows Server 2003 — communication is handled by SMB 1.0 rather than SMB 2.0 (which is backwards-compatible to deal with such scenarios).

Is any of this a reason to hold off deploying Windows Vista? It mostly depends on your environment, but it's worth considering when 'selling' the concept to managers and users. At the moment, Vista's networking performance within existing infrastructure is unlikely to impress and may leave users wondering why they've been for no tangible benefit. Remember that the visual improvements in Vista's user experience won't persuade users to overlook any performance hits which impact their productivity.

However, when you consider that the timing of Server 2008's release ties in very closely with Vista SP1, there's a definite business case that if you haven't deployed Vista yet, hold off and continue testing with the available beta releases. They are built on the same code, use many of the same technologies, talk the same language and use the same activation model. In many ways, attempting to deploy Vista without Server 2008 is asking for trouble. Additionally, the improvements made to Vista with SP1 suggest that deploying Vista with the service pack integrated is a worthwhile course of action. And, of course, deploying a new OS with an integrated service pack is much easier than deploying them separately. apc

IS ANY OF THIS A REASON TO HOLD OFF DEPLOYING WINDOWS VISTA? IT MOSTLY DEPENDS ON YOUR ENVIRONMENT



HastalaVista

by James Bannan

James Bannan is a systems manager at St Leonard's College (Vic) and APC's resident Windows expert. He'll be checking out Vista for you every month.

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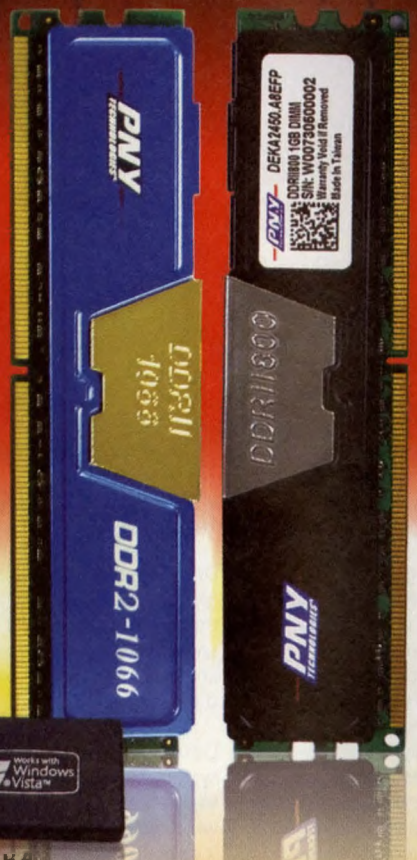

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Playful penguins

Games: there's a reason Linux isn't famous for them, but is there a change coming in the state of play?

A year ago I wrote about the state of Linux games, or largely the lack thereof — Linux, bless it, has become a master of most trades except for games, not so much because it's incapable but largely because the support isn't there. There's no market for games under Linux because there hasn't been a strong focus for it, so people don't use Linux for games. It's chicken and egg.

But things are slowly changing.

Recently, Creative released the first Linux driver for its X-Fi range of sound cards. The X-Fi became the dominant and de facto sound card of choice for a while thanks to its quality and features. It's taken three years for Creative to release a driver for Linux, but the fact there's a driver at all is akin to asking if the sky has fallen — even under Windows, Creative has an appalling track record, which only makes the Linux release all the more impressive.

Then we have two recently released big-name games — Enemy Territory: Quake Wars and Unreal Tournament 3, which come with native Linux binaries, albeit not in the box (they need to be downloaded). This isn't the first, of course — iD and Epic have long supported Linux with native binaries, but it's great to see this continue. In many cases, the Linux versions are slightly faster than their Windows counterparts.

Enemy Territory: Quake Wars has its own downloadable Linux binaries, lets hope that other major games follow its lead.

The environment is changing, even as Microsoft tries to push the world to Vista and DirectX 10 (and which it is heartily resisting — the graphics superfest that is Crysis has a freely available community-made config file that grants DirectX 10 effects to the DirectX 9 Windows XP platform).

WINE, the classic and getting-stronger-every-day translator (must be careful not to say 'emulator'), now has extensive support for DirectX 9, and many DirectX 9 games can be played with it — though of course, not at native speed. Still, being able to load them at all is a huge step forward from the past.

It probably doesn't help that Linux doesn't have a standard base system. Even if developers *wanted* to use Linux as a gaming platform, which distribution do they choose? It's not a question of looking at the hundreds available — even among the popular ones, there's still a choice of eight or so — and who can be fussed trying to generate binaries for different glibc versions, SDL versions, and differences in base layout between the different distributions? It's unnecessary work. The problem, of course, is that while almost all the other programs that run on a Linux system are open source, and distribution maintainers can compile binaries specific to their distributions, this just isn't going to happen to the IP-laden multi-million dollar engines that drive the games of today. There'd have to be pre-made binaries, or none at all. Which is exactly what we happen to get.

It's unfortunate that developers consider the lack of a Linux audience akin to a platform that isn't ready for gaming. OpenGL is extremely mature; SDL allows easy cross-platform development; OpenAL is already the standard, and increasingly the same for Windows — every year the leap becomes smaller and smaller. It just takes momemtum — multiple developers taking the time and money to support Linux as a platform. There's certainly a growing market of Linux users, as the popularity of Ubuntu shows. So, there is a market of Linux gamers waiting to buy products for their platform. Here's hoping this last bastion for Linux falls in the next five years — it's the only area where Microsoft still has any pull.

LINUX DOESN'T HAVE A STANDARD BASE SYSTEM. EVEN IF DEVELOPERS WANTED TO USE LINUX, WHICH DISTRIBUTION DO THEY CHOOSE?

LinuxWindow

by Ashton Mills

Editor of the Linux Pocketbooks series, and now with CHOICE magazine, Ashton has been a tech journo for over 12 years, including five years with APC.

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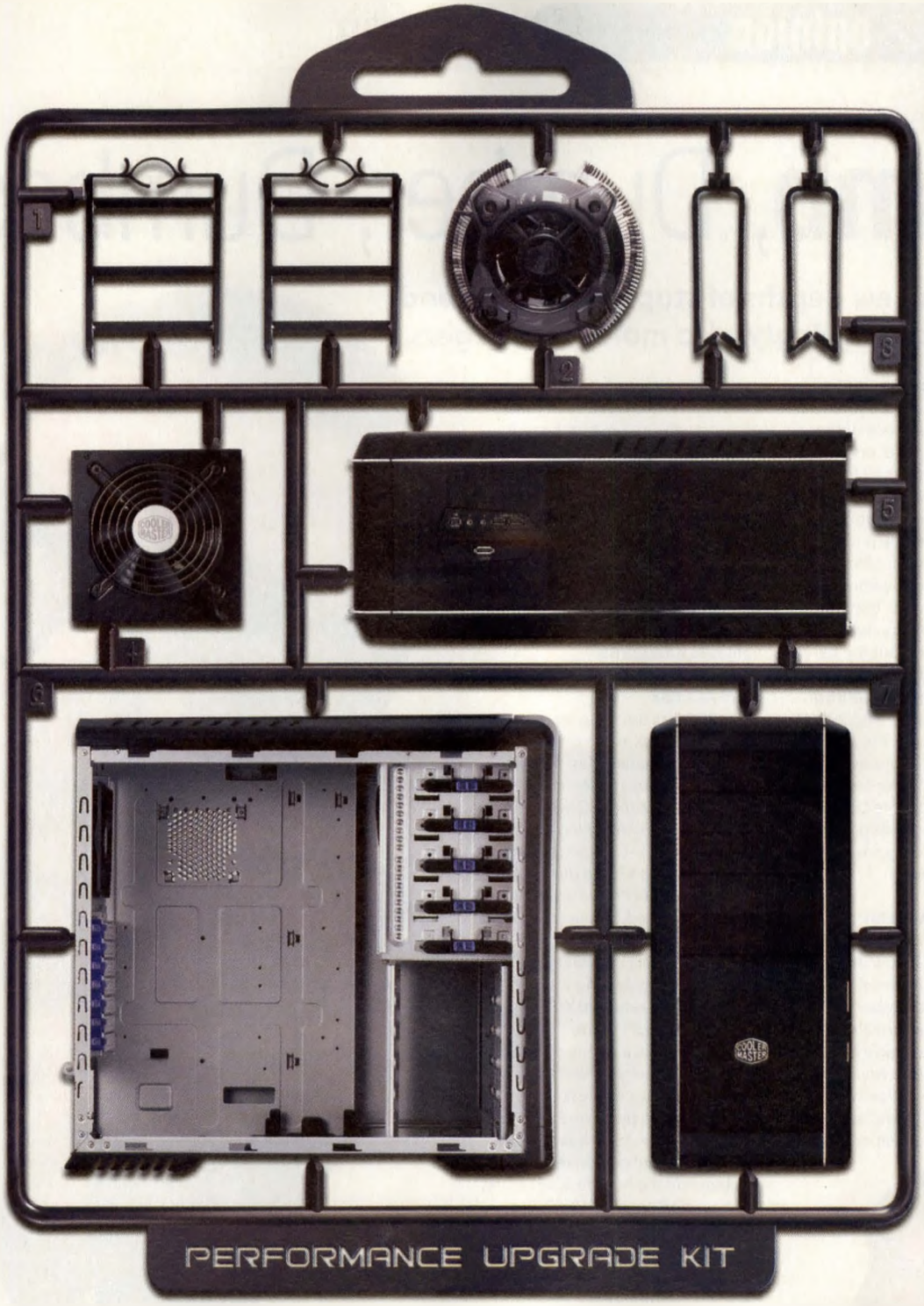

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Dumb, Dumber, Dumbest

We plumb new depths of stupidity among end users, but, worryingly, also more IT managers.

David Johnson is a systems administrator for a financial institution. He recalls one of the helpdesk staff asking users for the asset tag number on their PCs. This was a sticker with a 3-digit company code and a 6-digit asset number with a barcode underneath that. "One user started telling the helpdesk girl over the phone that the asset number was: 'thin line, thick line, thin line'. The dumb user was actually reading out the bar code bars," says Johnson.

You think that's bad? Johnson points to another user who, on being told to right-click in a document, was later discovered to be writing "click" on her screen. We've had this anecdote before, so Johnson's experience proves it's no fluke — there really are scarily dumb users out there.

INBOX FULL, BRAIN EMPTY

Alan Hockings, an infrastructure applications team leader at a major Australian university, received an email from a staff member complaining he was unable to send or receive emails because his mailbox was full. "You would think that the obvious solution was 'delete some stuff, man,'" says Hockings, but this never occurred to the user. "It is sad enough that a university employee can't think of that on their own, but the real twist in this story is that I was not on helpdesk. They had escalated the job to the Admin team presumably as they could not resolve it on the spot." True, Alan, but we're talking about universities here. They're proving to be the biggest single source of dumb user anecdotes for this column, so this comes as no surprise.

FREE ACCESS

David Xie was doing an internship on the helpdesk at the University of Otago, New Zealand, last semester, where his job was to set up wireless on students' laptops. One particularly busy morning a user came in to get set up. Since she was using Windows XP and didn't have the WPA2 (Wi-Fi Protected Access 2) patch installed, Xie had to patch her system before he could configure her access. But after patching and restarting the notebook, the required WPA2 option still wasn't there.

At this point, a queue of other users was forming behind the customer at the helpdesk — but Xie knew he had to persevere and help her. Her wireless card was a little-known brand whose driver was not available on the helpdesk's FTP site, so he wasted another 10 minutes finding it on the net.

By now the queue of people behind the desk was getting

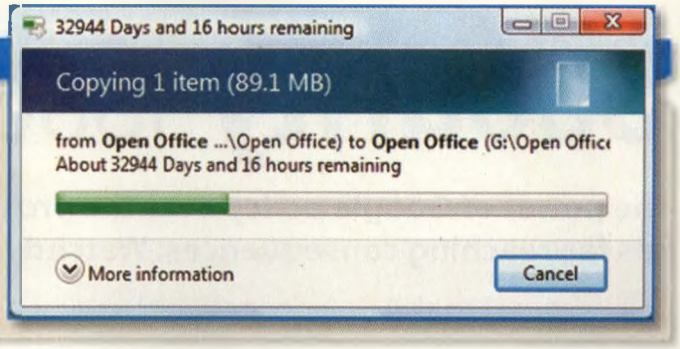
Hmm, blue screen of death... It must be the screen that's the problem!

EndUser

from The readers of *APC*

APC readers who deal with new computer users or incompetent IT administrators share their survival stories.

DUMB VISTA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This is not about an end user, but a dumb OS. John Kyle of Bellingen, NSW, thought other readers may appreciate this screenshot of an attempt to copy an open source installation file on his new Vista PC. "I guess my new PC with Core 2 Duo plus SATA drives just isn't geared up for Vista. I'm really hoping I don't have to reboot before the year 2037, or I'll have to start the copy again. And as you can see, it's already a third of the way through — good job I started the copy in 1987. . . not! Note to conspiracy theorists. . . could it be because I'm copying an open source file? he he he ;)"

noticeably impatient, but Xie was on a mission to help his customer. "I couldn't really leave her because she had been standing here for quite some time already," he says.

But after upgrading her wireless driver, everything worked. "I asked her to type her username and password in the dialog box so she could get authenticated. She looked at me and asked where she could she find her username and password? I could now see some funny reactions from the people waiting in line behind her, with one guy making strangling gestures with his hands. I showed her my Student ID Card and told her the details would be on hers.

"She then announced that she was not a student! Someone at the university had told her she could get free wireless in the Central Library. I couldn't speak for about 10 seconds — not to mention the people behind her. I told her to get her free wireless at Starbucks. After this incident, I got into the habit (for a few days) of asking people whether they were students."

CHANGE THE BLUE SCREEN

Amit Chaudary was a junior programmer in a multinational company when he ran into the newly appointed technical manager. "One day my MS OS had crashed and was getting the classic blue screen when he came around to look at what was going on. When I explained the OS has crashed he gave his verdict: 'Change the screen and this will fix it!' Needless to say, I lacked the courage to tell him the truth: that it wasn't a malfunctioning screen. The boss is always right ;)". Well done Amit, career-wise it's safer to let clueless IT managers learn from irate customers.

MICROWAVE BOOK

Five years ago, Jean-Gabriel Machuret was working in the European call centre for Oracle employees . He recalls: "We used to get calls from Oracle employees requesting IT support. Usually the calls were always about the same issues, such as Windows crashing after updates, viruses, or simply troubleshooting of applications. One day I got a call from the US, at 3am US time. Only the names have been changed:

Support: Oracle Customer Support, Gabriel speaking, how may I help you?

User: Hey there, this is Bob, VP for Oracle sales in (city name withheld). I think my laptop has a virus and it's dead. It will not work.

Support: A virus? OK, that can be fixed.

User: No, this laptop is dead. It can't be fixed. I need a new laptop.

Support: Well, if the problem is a virus it can be fixed, sir.

User: Believe me , I'm VP for Oracle sales. I know when a laptop is dead.

Support: Can you tell me when was your laptop working for the last time?

User: Over 30 minutes ago, I spilled my Coca-Cola onto the keyboard and then the laptop stopped working.

Support: Coca-Cola?

User: Yes, but that's not the issue, it had a virus before that, and now it doesn't work. I need a new one.

Support: Sir, the Coca-Cola would have damaged the laptop for sure.

User: Of course I know that Coca-Cola could affect the laptop, so I dried the laptop inside.

Support: How did you manage to do that? Did you open it?

User: No. I put the laptop to dry inside the microwave, on a low setting for a little while.

Support: In the microwave?

User: Yes, but it was on low. Believe it or not," says Machuret, "this call actually happened. After that answer, I had to transfer the call to my manager." [3]

The great thing about microwaves is they can dry out just about anything — including laptops!

WINNERS!

This month's published End User writers win a Roxio Easy Media Creator 10, Roxio's Vista-ready flagship suite of digital media applications worth $159.95. Easy Media Creator enables you to quickly and easily produce impressive multi-media projects that combine photos, video and music. Creations can be shared and enjoyed on CD, DVD, the web or on popular portable players and mobile phones. Easy Media Creator 10 also includes Roxio MyMoments, which shows how other consumers are making the most of Roxio's rich applications.

SEND US YOUR CONTRIBUTION AND WIN A PRIZE!

Send in your tales of woe involving dumb end users or incompetent techies to ***apcenduser@acpmagazines.com.au*** and if we print it, you'll win a prize. You must supply contact details in order for us to verify your contribution.

Security issues

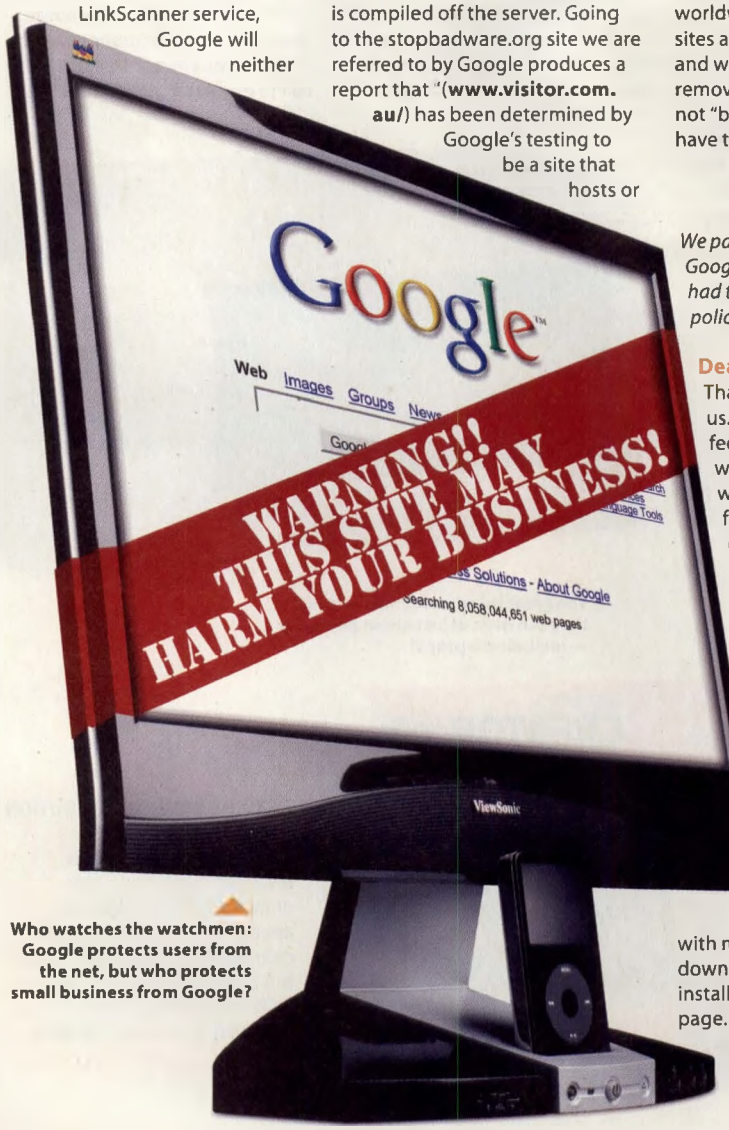
The power of Google policy over the prosperity of small and local businesses has far-reaching consequences. Watchdog investigates.

Google can say a site is bad while other services, such as LinkScanner, say it is good. And, in one case, that is damaging a small tourism publishing business on Victoria's Mornington Peninsula. The added line to their Google entries — "This site may harm your computer" — appeared around a month ago, but despite many efforts and confirmations from their web host (myself), an independent web configuration service in the UK (configserver.com) and the LinkScanner service, Google will neither remove the comment (which also locks out the link) nor answer questions as to why it is listed.

I'm guessing, but there are mentions of an iframe exploit causing problems for other sites, but on this site there used to be an iframe pointing to a calendar program (WebCalendar) running on a site owned by the same tourism publishers on a second server. However, that program was replaced a month ago by a commercial calendar program that is compiled off the server. Going to the stopbadware.org site we are referred to by Google produces a report that "(**www.visitor.com.au/**) has been determined by Google's testing to be a site that hosts or distributes badware", so it seems each is referring to the other, but there's no mention of what the "badware" may actually be.

In the meantime, a number of Australian tourism businesses are suffering, such as a tile painting craftswoman whose only direct reference on the web is to details of her address and phone number — but which in a Google search has the same damning phrase. I'm sure the intent of Google is good, but it is damaging small businesses worldwide who have checked their sites and can find nothing wrong, and who have taken steps to remove suspect items which, while not "badware", might just possibly have triggered Google's angst.

Gordon Woolf
Hastings, Vic



Who watches the watchmen: Google protects users from the net, but who protects small business from Google?

We passed Gordon's complaint onto Google Australia, to see what they had to say about their security policies in light of Gordon's claims.

Dear Watchdog,

Thanks for raising this issue with us. Google wants our users to feel safe when they search the web, and we're continuously working to increase protection for our users, by warning them of potentially dangerous sites. At the same time, we aim to respond quickly to webmasters who have cleaned their site and who seek a review of their site's status.

As the webmaster in this case points out, the site included an iframe to a calendar server. The calendar server was compromised. As a result of that, visitors to the page would get their computer infected with malware. We saw trojan downloaders and backdoors installed as a result of visiting that page. Upon receipt of your email, we immediately undertook a review of the site and have determined that it is now clean. We have immediately removed the warning. Any webmaster who wants to seek a review of a warning attributed to their site can do so very easily at any time — either through Google's Webmasters Tools or at **http://stopbadware.org/home/reviewinfo**, and we will review the site as quickly as possible.

Rob Shilkin
Head of Corporate Communication & Public Affairs
Google Australia

Gordon observed Watchdog's involvement had "achieved the result we needed." However, he added: "As stated, there was an iframe on our site, pointing to another of our sites, and the first thing we did was to remove that iframe because of some non-specific warnings we found online of potential dangers in iframes, even though we had no idea of the true cause. We also immediately replaced the calendar with a calendar compiled offline to cut down on online scripts. All that was done before we received the email from Google telling us that they had imposed the warning. Then all we could do was wait and complain to Google and to everyone else we could think of. Unfortunately, Google would not reply or do anything for week after week.

Fortunately, APC Watchdog came through. Slowly the hits on the sites, including those from overseas and interstate visitors, are growing again, and many other small businesses in the tourism trade on the Mornington Peninsula will also have you to thank. Overall, I think action on the lines of that by Google is needed, but there has to be a rapid way of getting corrections and to restore sites when things are put right. We had done as Mr Shilkin suggests, but nothing happened until the response to your email. Thanks for your effort on our behalf. The big media has helped the small."

THE WAITING GAME

Allan Applin of Hendra, Queensland, is obviously a keen gadget fan, but this alone couldn't help him dock his iPods with his three ViewSonic ViewDock monitors: two 1945WMs and one 2245WM. These were purchased to replace his existing ViewSonic VA903m 19in LCDs. "I chose these as we have iPod second-gen nanos in the family, and these monitors have an iPod dock which is handy for connecting the iPods to the PC, as well as being able to play music from them without the PC turned on. Unfortunately, of the adapters provided with the monitor, there is no adapter for the second-gen iPod – only the first-gen which has long stopped being sold." After contacting ViewSonic Australia several times to enquire about obtaining second-gen adaptors (but being met with little assistance), Allan complained to Watchdog, exclaiming: "I find it hard to believe ViewSonic does not support the most common iPod – the second-gen has been out for a fair while, and now there is even the third-gen!"

Watchdog contacted ViewSonic and informed the company of Allan's experience. Brendan Frawley, country manager for ViewSonic Australia and New Zealand, told us: "ViewSonic has recently received customer enquiries about the possibility of producing a ViewDock adaptor for the second-generation iPod nano. We understand that the ViewDock is an extremely popular product amongst our loyal customers and ViewSonic is dedicated to ensuring that our customers are satisfied with our products and services. In response to requests like Allan's, we will make a ViewDock adaptor available in time for Christmas to support the second-generation iPod nano. This adaptor will be included in all future shipments of the ViewDock along with the five existing adaptors for other generations of the iPod. Please contact ViewSonic on 1800 880 818 if you have any enquiries about the new adaptor." Allan, after some initial difficulty getting through, spoke to ViewSonic in Sydney and was advised they would send some adapters to him: "Hopefully they will arrive soon. I will let you know if there are any problems. Please note for those interested that there are no third-gen adapters out yet. I did not ask if or when they would be available. . ."

BACK IN BLACKLIST

I have contacted AAPT several times over the last 18 months about overseas ISP blocking our mail. Usually they fixed it fairly quickly (and also kept reassuring me that they do *not* allow spam).

However, our mail is again being blocked by several ISPs, and they all say it's because of spam from AAPT. . . so again. . . I sent an email to them to complain about it and was told it could not be resolved and to look into "getting a Hotmail, Yahoo! or Gmail account."

I find it outrageous to be told by my ISP — who I am paying for a service — that I should get web-based mail (I do have web-based email, but I prefer using AAPT for friends and family).

Worse, they allow spam to be sent. . . what serious ISP would do that?

I'd be interested to find out if there are any more unhappy customers like myself.

Jutta Vyner
Wodonga, Vic

Watchdog referred Jutta's complaint to AAPT, who replied with the following:

Dear Watchdog

Protecting our customers from spam is an issue AAPT takes very seriously. We are continually monitoring and enhancing our email services and spam-detection techniques.

If a customer sends spam through our mail servers, it may end up at other ISP's. The spam can either be intentional (eg. connected to AAPT for the purpose of sending spam/advertising) or unintentional (eg. the customer's computer may be infected with a virus).

The problem Mr Vyner is experiencing is a result of 'blacklisting', an issue affecting many ISPs. Some ISPs maintain a list of ISP and IP addresses they've identified as being a source of spam, which they block from entering their network. The blacklist then prevents *all* email from listed ISPs entering their system for a period of time, not just spam items.

Unfortunately, the detection software used by third party ISPs is not always accurate in its assessment of what does and does not constitute spam, or the amount of 'spam' warranting registration on the blacklists can be aggressive. The inaccuracy of this software often results in incorrectly identified ISPs being added to blacklists, then, after removal, added again at a later date.

A number of ISPs employ this localised form of blacklisting, and this approach obviously can be to the detriment of legitimate mail being received by their own customers.

AAPT treats all requests for blacklist removal as high priority and we attempt to resolve the blocks as quickly as possible. We have a dual approach for reducing our potential to be blacklisted. Firstly, we liaise with other ISPs to prevent incorrect blacklisting. We also proactively monitor our own internal systems to ensure obvious abuse of our email system is resolved.

We are aware of the specific ISP Mr Vyner is referring to and provide continual targeted monitoring of any blacklisting-related activity affecting our customers.

Given that resolution time can vary depending on the level of interaction required between ourselves and the ISP, as a temporary solution for this specific case, one of our helpdesk technicians advised Mr Vyner to consider sending his email to the destination address via an alternative source. This advice was intended to help our customer achieve mail delivery until the block was removed.

Tahn Shannon
Head of Corporate Communications
AAPT

Jutta wasn't particularly convinced: "I do understand some of their problems, but this keeps happening again and again involving different ISPs. Usually I am very happy with AAPT's service. . . but telling me to use webmail is just not good enough. How many other people have experienced these problems?"

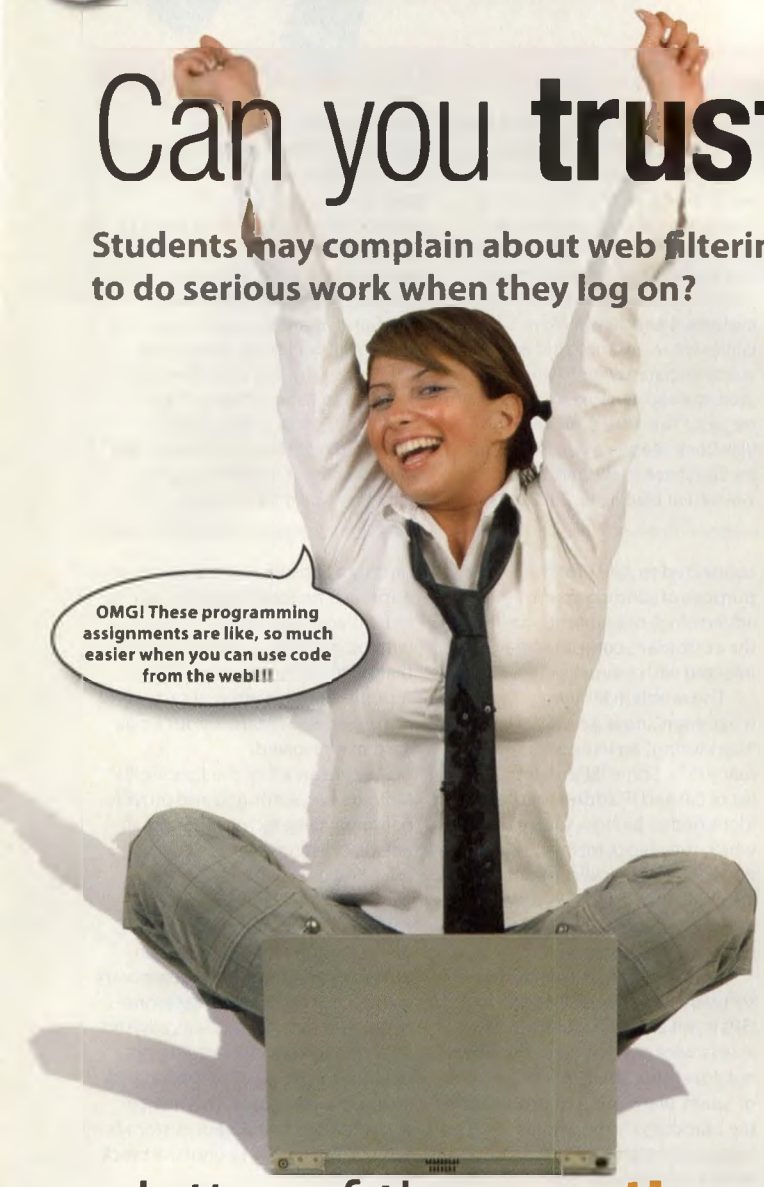
Friends and family not staying in touch like they used to? The problem could be email blacklisting. . .

watchdog@acpmagazines.com.au

Has an IT vendor or telco stuffed you around? Let us know about it and we'll chase them for a solution on your behalf. Letters sent to watchdog@acpmagazines.com.au must include the writer's full name, street address, suburb, state and phone number to be considered for print publication (please also include details such as invoice numbers and people you've spoken to). Address and phone details will not be published. All correspondence becomes the property of *APC* and is subject to editing.

Can you **trust students?**

Students may complain about web filtering at school, but are they really looking to do serious work when they log on?



letter of the **month**

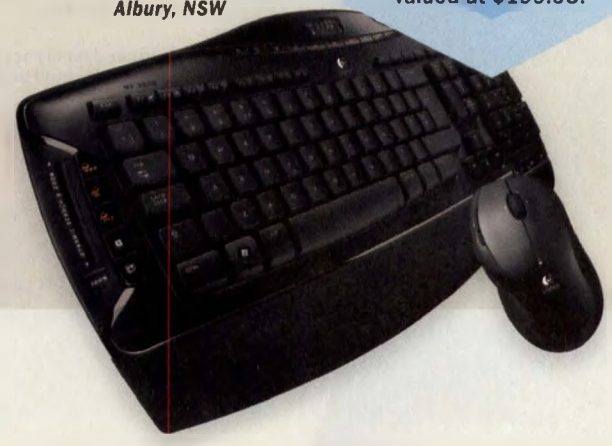
THINK GLOBAL, ACT LOCAL

These days the computer and technology industry is rapidly changing, and it seems that only big names like Apple and Microsoft are able to keep ahead of the competition. The focus has changed: users now desire power and speed rather than the quality of the machine that they are purchasing/upgrading. With all these trends occurring, it is now no wonder that billion-dollar giants are ruling the market, pumping dollar after dollar into it to ensure that they rule the roost.

This leaves local vendors stuck in the dark when it comes to cutting-edge technology. Independent retailers are diminishing, and users are being forced into the mainstream path of the corporate giants. Long gone are the days when there was a variety of sellers all offering machines that will perform for a quality price. There are still local vendors around, but most have adapted to selling brand-name PCs rather than ones built on a local site. With Apple's latest release of the iPhone, or Microsoft's Windows Vista, one wonders whether we will ever see local products challenge brand-name PCs ever again? Realistically, there is not enough drive behind them to get off the ground at the moment. We need to see a "David and Goliath" situation, where more locals are challenging the big manufacturers (and winning). This should allow users to be able to select from a range of quality products without a big name (or big price tag) being forced upon them.

Brad Coates
Albury, NSW

Brad wins this issue's Letter of the Month prize, a Logitech Cordless Desktop MX 3200 Laser keyboard and mouse set valued at $199.95.



As a teacher and the IT administrator at my school, I have some concerns with regard to Cheng Zhe Wu's Letter of the Month (*APC* November, page 24). Maybe it is the cynic in me, but when I see students looking up programming code, it tends to be because they cannot figure out a programming problem for themselves and are using the internet to get the source without having to do the work for themselves. So from my perspective, I fully understand the need for blocking. As a programmer, I often use the internet to find out how to solve tricky problems, but I am not being graded and I always give due credit within my code to any sources, unlike my students.

While Cheng bemoans the fact that he and his colleagues are not treated maturely, citing the right to drive as an example, isn't it astounding that the bulk of road deaths occur in drivers 17 to 25 in age, those same mature people that Cheng wants to be trusted to not take risks on the internet.

I doubt Cheng or many students have had to work through some of the horrible issues I have had to work through caused by student misuse of the internet, from using MySpace to vilify students and teachers, to using the internet and Photoshop to create inappropriate images of students at school.

Maybe if the students had to face when things go wrong and the sheer volume of work created to try to ensure a safe experience for all users then students like Cheng would show a little more respect for the filters. When all students are capable of making consistently mature decisions then there will be no need for internet filters. Just like when all young drivers drive maturely there will be no need for speed cameras and RBTs.

Glen Washburn
Upper Coomera, Qld

SOFTWARE FALLING BEHIND

Your November 2007 issue was particularly interesting. I agree we are heading for exciting times with computer gear, but I am more convinced the software

Why make your wallet quake with the thought of endless and expensive upgrades?

developers are falling further and further behind new hardware development. You mention the next Nvidia 9000 series graphic cards will be three times more powerful than the 8000 series. Why bother!? I purchased an 8800 GTS OC earlier this year and am still waiting for a game to use its full potential (eg. Crysis). I have an SLI Mobo, but why go SLI? What a waste of money. The 9000 series will make it redundant to the extreme. I purchased Enemy Territory: Quake Wars, which does not need a card like mine. I use Vista and it needs SP1 ASAP and they had better be working on SP2. I am an avid online gamer and power user, but I am re-thinking the power thing nowadays. The bottom line is, we are shovelling money into the old case for virtually no gain at the moment!

Darian Monjean
Murray Bridge, SA

NEW DVD LOOK

I just wanted to congratulate you on the 'new look' DVD web pages, using a very accessible web page layout. The first thing I did was View > Source and smile at the wonderful vista of DIVs. I have been advocating accessible sites for years now, and my text-based virtual world is an ideal alternative to Second Life for those who appreciate your new-look pages. I believe you can keep some of the 'techo-glitz' of the old DVD web pages (background images are a wonderful thing). I can't wait to see how your pages develop from here. Keep up the good work.

Wallace McGee
creativeobjectworld.com

EXPOSING PIXELS

I have just read your article on HDTV in the July 2006 edition (yeah, I am a bit slow). There is a technical error in the explanation given on the two scanning techniques described. Both scanning methods involve a sequential presentation of 'pixels', and interlaced scanning is correctly described (and it is worth noting that this was a necessary compromise on refreshing of images — to minimise visible flicker — due to the bandwidth limitation of the analogue television broadcasting system), but saying that "Progressive displays every line at once, creating a sharper image" is not true on two counts. It does not display every line at once; it sweeps through every line sequentially, instead of the odds followed by the evens, as in interlaced. Both systems still 'expose' every 'pixel' 25 times per second (PAL), even though their scanning method is different, so it is not true that progressive gives a sharper picture.

Now that we have program sources that are not as limited by the transmission scheme/storage media, and have local image processing and presentation methods, we don't really need to use interlaced scanning (unless we are outputting via conventional analogue television sets).

Graham Goeby
Greensborough, Vic

BAD EXPRESSION

I have to admit I was very surprised when reading the review of Expression Studio by Tom Dennis (*APC* November, page 28). In it, he refers to Expression Media as "Microsoft's attempt to ape Adobe's Bridge". You couldn't be more wrong, Tom. It's like comparing Quark Express with Illustrator. They are two completely different types of programs. Bridge is a file browser, whereas Expression Media is Microsoft's re-badging of their recent purchase of iView Media Pro. This program is image-

epinions@acpmagazines.com.au

Come on, have your say! We want to hear what you think. Add to these discussions or email your views (in fewer than 250 words) to epinions@acpmagazines.com.au. All correspondence becomes the property of APC and is subject to editing. Letters must include writer's full name, street address, suburb, state and phone number to be considered for print publication and to be in the running for Letter of the Month prizes. Address and phone details will not be published.

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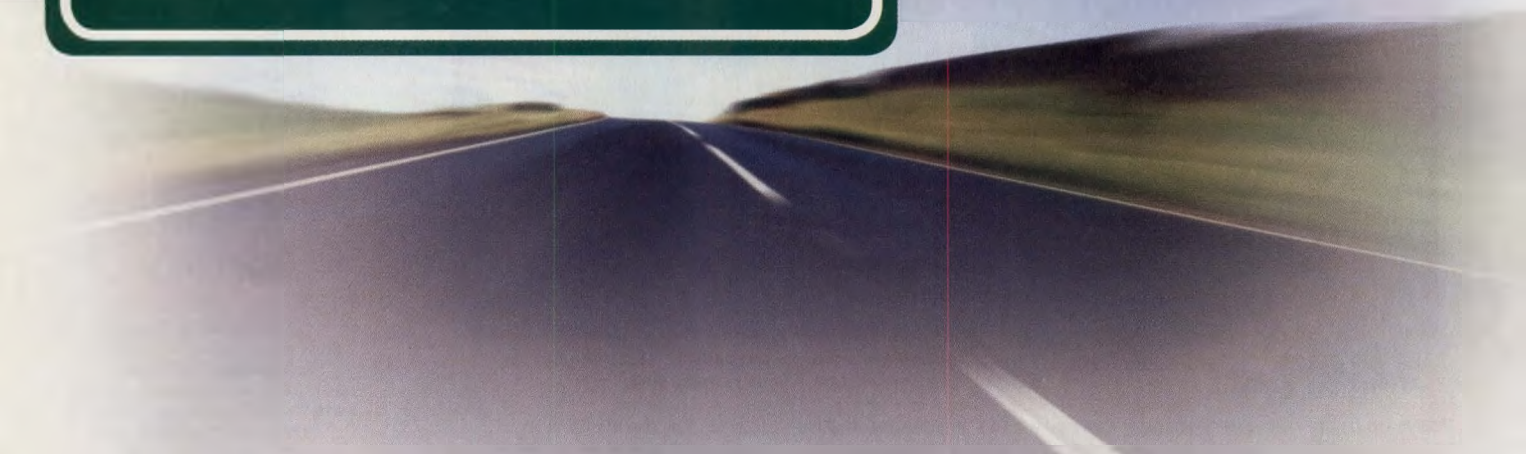
NO ADSL2+ BEYOND THIS POINT



"Sorry sir, but broadband stops at the city limits. Anything over 25 minutes away is clearly rural."

cataloguing software, which is vastly different from a browser. The fact that you have to "import all files into a central catalogue" should have been a big hint. Professional photographers use both these programs in conjunction with each other, and they are *not* competitors. Get it right, Tom! To check out both programs, have a look at *The DAM Book* (Digital Asset Management for Photographers at **www.thedambook.com**).

Geoff Powell
Noosa Heads, Qld

TEMPTED BY LINUX

I read with interest your 'Linux takes on Vista' article in the November 2007 issue (page 61). I also recently read the Open Source Challenge on your web site. Having been a Windows user (from playing DOS games on Windows 3.1 to recently buying Vista), I've never given Linux much thought... until now.

Perhaps it was the thought of having a new 'toy' to play with, or perhaps just wanting to expand my horizons. Whatever the reason, I found myself considering Linux to the point where I went searching online to find Linux versions of the software I frequently use. This, however, is where I stopped.

Until I can run my current software on Linux, I see no point in changing. As far as I can see, there's no way to run Paint Shop Pro XI or Premiere Elements on Linux. As for my other software, I realise I'd have to consider doing away with some things and finding Linux alternatives, but I would still like to use programs like iTunes and ZoneAlarm.

I could always dual-boot Linux and Windows (thanks again to your online articles), but I think I'd find myself constantly using Windows over Linux for everyday tasks. If that were the case, what would be the point of having Linux at all?

Having said all that, I look forward to reading more about the future of Linux in your upcoming issues. So keep up the good work, you may make a convert of me yet!

Peter Anderson
Sandy Beach, NSW

CABLE OUTSPEEDING QUOTA

Whilst it is great news that Telstra looks like upping its cable speed, are they going to up our monthly quota? What worries me is that I'll reach my 12GB limit in two weeks instead of three! Who should I contact at BigPond with regard to their miserly quota (which includes uploads)? I can't wait for my contract to run out. My speed will be slower but with a provider like OntheNet, I get a total of 35GB (peak and off-peak combined, and just my downloads!).

Ken England

EAGLE EYES

In your October issue, on page 74, you talk about Charles Babbage and his "Analytical Machine" and "Difference Machine". Note that he actually called them the "Analytical Engine" and "Difference Engine".

On page 75, you say that Perl was invented in 1987 because "other scripting languages such as Awk and Python were not adequate for string processing".

This would have been a bit difficult to judge, since Python didn't exist until the early 1990s. Perl was really designed to add more programmability and data-structure handling to the capabilities of the early Unix string-processing tools, namely Awk, Sed and Grep. Languages like Python and Ruby came later, and they build similar features to those found in Perl (plus a few extras), into a more cohesive and integrated framework, designed from the ground up, rather than having grown by accretion as Perl has.

On page 83, you say the Cray 1 was "the world's first supercomputer". Actually, the first supercomputer was the CDC 6600, introduced in 1963. It was fifty times faster than the previous fastest computer in the world, the CDC 1604. And yes, both machines were designed by Seymour Cray, before he left CDC to form Cray Research. See *The Supermen* by Charles Murray for more info about Cray's career.

Lawrence D'Oliveiro
Hamilton, NZ

DON'T ASSUME

Until this month, I was one of those who Tony Sarno was referring to with regards to the monthly DVD not being required, as I enjoyed the fruits of an ADSL2+ connection in inner Melbourne suburbia. I never gave a second thought to downloads of any size or description. That was before I moved into my new house in a two-year old estate, in Melbourne's south-east, in one of the fastest-growing areas.

I was shocked to find out shortly after moving that — although the local exchange is ADSL-enabled — I would have no chance of ADSL of any type indefinitely, due to the RIM having no more ports. No timeline was given. I could choose to wait till someone else disconnects, use dialup, or fork out huge amounts on 3G wireless broadband. There's cable access even.

I can't believe that moving 25 minutes down the freeway could put me in this position (I work from home), with all this talk about broadband access in the bush being an issue, it seems ridiculous that, in an area which is continuing to expand, there is not even a plan by any telco to provide affordable access in the future. I have since found an affordable wireless service, with just enough reception — however, a 4GB download limit means I have to keep an eye on my traffic and start relying on the *APC* DVD a little more.

Imran Shah
Berwick, Vic

SONY

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ON SALE NOW!

This month in Labs. . .
Tough love

Though I often use these few brief words at the beginning of the Labs section to expound on my theories of modern IT, sometimes it's nice to step back and look at the real world — and the challenges at the coal face.

These days, my hands-on time with tech is pretty much limited to getting wrist deep in the solder-point sharp pool of review product that moves through the Labs every month. Most of the time, setting up and testing equipment is a straightforward process, just like building a PC or server, installing new software or scratching your head over the plethora of cables behind the AV shelf at home.

It's not always the case, though. I've a few anecdotes, learned the hard way, from my daily rumbles with review hardware.

1. Sometimes it takes a pair of pliers, a small hacksaw and a C clamp to remove a CPU from a motherboard socket. After testing a new CPU architecture with an eye toward overclocking, using a hefty high-powered cooler is par for the course. When you can't remove the cooler afterwards due to a set of opposite, twice-threaded screws and an unluckily placed cooling plate beneath the socket, it might be necessary to cut off the CPU cooler and attempt to bend it enough to get the CPU out of the socket.

2. Though we've come a long way, plugging in a floppy disk drive's power cable upside down is still a good way to destroy the drive, the PSU and the motherboard.

3. Almost a whole day can be spent figuring out why a system wouldn't see a disk attached to any SATA port on a motherboard — especially when it's a SAS drive — not a SATA hard disk drive at all.

4. Data projectors, when they arrive in a box that looks like it's been dropped from a great height, rarely work as well as they are supposed to.

5. If a video card is very, very unstable, even for pre-release drivers, check the box it comes in. Some of the capacitors floating around probably started off attached to the PCB.

6. Though it makes you jump, accidentally putting your fingers in spinning PC fans will not cause any lasting damage. I speak from long experience.

What I'm trying to impart here is that taking a small amount of time to step back and take account of what's going on around us may save wasting one of our most precious commodities — our time. APC

Uhm. . . yeah. See number 1 above for the explanation for this.

NICK RACE – TECHNICAL EDITOR

BOLGER'S FRIEND

Microsoft has a new 2MP webcam, the LifeCam VX-7000, which also provides 7.6MP photos, and lets you use the new Windows Live Messenger Photo Swap feature. A noise-cancelling microphone also means those YouTube karaoke efforts and video blogs will sound better than ever. Price $149.95.

www.microsoft.com.au

PIONEER STORMER

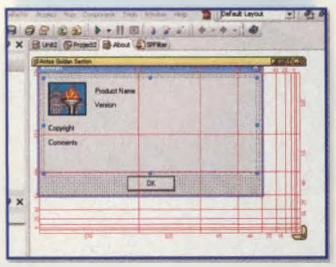
We have to hand it to Pioneer Computers' Jeff Li — meet his latest, the DreamBook D90, the world's first notebook with a quad-core processor (and option for a dual GeForce 8800 GTX). The DreamBook D90 with quad-core processor is available on a build-to-order basis. From $3,499.

www.pioneer.net.au

THE GOLDEN SECTION

Can't draw? Here's a tip: use the golden section, a shape that is said to occur in nature and was first expressed by the ancient Greek philosopher Euclid. Its ratio is referred to as PHI and is expressed mathematically as 1:1.618. Now the software utility Atrise Golden Section 3.0 for US$29.95, lets you apply the golden section to your art.

www.atrise.com



Core 2 Extreme QX9650: the new chip may only be slightly quicker than its predecessor, but it's twice as power-efficient.

Intel Core 2 Extreme QX9650

Intel's 45nm tech proves Penryn is not just a process shrink.

CONTACT	Intel
ONLINE	www.intel.com
MARKET	Performance enthusiast
PRICE	N/A

✔ Reduced heat; better performance.

VERDICT ★★★★☆

✖ It's not cheap!

New PC processors usually fall into one of two camps. The first is the dumb die shrink, producing smaller, cheaper, more efficient and higher-clocking chips. The other, sexier sort involves an architectural overhaul or perhaps even a revolutionary new design. Indeed, this distinction is the basis of Intel's 'tick-tock' strategy. Starting with the introduction of its 65nm silicon production node in late 2005, Intel has committed to rolling out a new microarchitecture followed by a new generation of silicon process technology every two years.

True to its word, Intel is delivering the world's first 45nm PC processors. In architectural terms this new 45nm family of chips, known under the codename Penryn, is essentially a mild revision of the Core 2 architecture launched to much acclaim in 2006.

However, this is no ordinary, incremental die shrink. Granted, the list of architectural overhauls is predictably modest. Likewise, in clock-for-clock terms, Penryn is only marginally quicker than Intel's existing 65nm Core 2 CPUs. But when it comes to power efficiency, and therefore the increasingly important metric of performance per watt, Penryn is simply stunning.

According to our power consumption tests, the range-topping quad-core 3GHz Penryn model (officially known as the Core 2 Extreme QX9650) cuts overall platform power consumption by a massive 60W compared to its identically clocked 65nm predecessor. It's impossible to completely isolate the CPU power and thus come up with an outright wattage figure, but we suspect this represents a halving of power consumption. Remarkable.

As with any manufacturing process shrink, the move to 45nm means more transistors packed into any given die space. Twice as many, in fact, which Intel is happy to tell you is exactly as it should be in the context of Moore's Law. As such, Intel has been able to up the transistor count to a massive 820 million and ramp the cache memory to 12MB, split into two 6MB shared pools — this is another quad-core chip that's actually a pair of dual-core dies crammed on a single CPU.

This new 45nm quad-core chip boasts 50 per cent more cache and a range of enhancements, but it's not a basic overhaul of the Core 2 architecture. In raw clockspeed, it's no faster than the best of the 65nm quad-core chips. When it comes down to it, the Penryn design delivers around 10 per cent more performance, clock for clock, in most metrics. Exactly how much is attributable to any of the new features is tricky to judge.

The big news is the approximate halving of power consumption, an incredible achievement that comes at just the right time given ever-increasing environmental concerns. Our only serious reservation about the QX9650 is the price. You'll get 85 per cent of the performance for well under half the price from the likes of the new mid-range 2.66GHz Q9450, which is likely to sell for under $300.

Intel is also launching a range of dual- and quad-core chips, priced from below $300. The Penryn may not be that much quicker, but thanks to the new process, it packs an awful lot of promise.

Jeremy Laird

PERFOMANCE TEST RESULTS

	Intel QX9650	Intel QX6850	Pentium D 955
Cinebench R10	1 min, 15 sec	1 min, 22 sec	3 min, 28 sec
DivX6.7 video encode	5 min, 7 sec (SSE4)	8 min, 11 sec (SSE2)	15 min, 31 sec (SSE2)
H.264 1080p decode	10.50%	10.70%	20.00%
PCMark Vantage	5,068	4,993	3,247
Photoshop CS	23 sec	25 sec	35 sec
Memory bandwidth	7,298MB/s	7,109MB/s	6,653MB/s
Peak power consumption	202W	262W	280W
Idle power consumption	152W	175W	200W

The Mio C720t offers an all-new feature — the Traffic Management Channel.

Mio C720t

Mio's latest offers some freshness to the GPS scene.

CONTACT	Mio
ONLINE	www.mio-tech.com.au
MARKET	Everyone
PRICE	$699

✔ TMC; great screen; Bluetooth.

VERDICT ★★★½☆

✖ Untidy setup; no desktop software.

It's been a while since a sat-nav brought something new to the market, but Mio's C720t does just that. While on the outside it looks much like any widescreen GPS receiver it adds an all new feature as well — the Traffic Management Channel.

Traffic Management Channel, or TMC, is a new service that delivers real-time traffic information to the GPS receiver allowing it to automatically re-route you around potential time-wasters such as accidents, roadwork and other traffic congestion. The local version of TMC is the SUNA Traffic Channel. It's developed by Intellimatics, which is a subsidiary of the Royal Automobile Club of Victoria. SUNA takes traffic information from traffic cameras on on-road sensors and known roadworks and relays those to the TMC receiver via FM radio.

The Mio C720t receives the data from SUNA through an FM receiver in the cradle, relies on a separate subscription and is dependent on Sensis Maps R14 or better. The service is live in Melbourne, with Sydney and Brisbane expected to come online in the middle of 2008. TMC cradles will be available as an option for other Mio units, including the C520 and C320 for about $200 (TBC).

Setting the C720t up in your car is straightforward. The mount sticks to the windscreen with a suction cup and there is no perceptible wobble while driving. To use the TMC you'll need to have the cradle connected to a power source (the cigarette lighter in your vehicle) and connect its FM antenna meaning that you've got two cables leading from the back of the C720t. We had to tie off the excess cable as we ended up with a messy tangle of wires. Perhaps version 2 will integrate an antenna into the cradle.

Once we were up and running it took the C720t about 90 seconds to get a clear GPS fix from a cold start. TMC came online a few seconds after activation. Directions are provided as 'text-to-speech', so you're provided with actual street names during navigation.

One of the C720t's strongest attributes is its display. The 4.3in TFT touchscreen running at 480 x 272 was crystal clear, even in bright sunlight while we wore sunglasses. There's a night mode that is automatically activated, if you set the appropriate options, which makes directions and other route information easy to see in darker conditions.

Route calculation was swift, with all of our test routes around suburban Melbourne calculated in well under a minute. This is thanks to a 400MHz processor which comes in handy if you choose to use the C720t as a mobile media player by loading videos and music through the SD slot.

Rounding out the C720t's long list of features are Bluetooth and a 2MP camera. The Bluetooth's a great feature that allows you to use the C720t as a hands-free unit for your mobile while you're driving.

Why bother with a camera in a GPS unit? So you can shoot photos of places you visit and have the photos appear as you travel. You can also use the camera for taking pictures of business cards and saving them to the contacts application on the device.

However, no software is supplied for syncing route or contact information back to your computer. Given the device is running Windows CE, we'd have expected a copy of ActiveSync (and connecting to Vista using the Windows Mobile Device Center proved fruitless).

The C720t offers lots of potential. TMC is an awesome feature and the display is sensational. However, there are few rough edges that need smoothing to make this a sensational device.

Anthony Caruana

INKS AIN'T INKS

If you're printing photos then it's not just the print and paper quality that's important — it's also the ink. Like Canon, which has ChromaLife 100 ink for 100 years' photo life in albums, Epson is pushing its DURABrite Ultra resin coated pigment ink — which it claims has up to 120 years light fastness. If only we could prove it.

www.epson.com.au

ALWAYS ONLINE

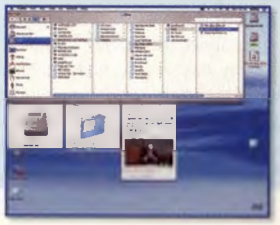
Getting a decent web connection on the road will be easier with Fujitu's LifeBook S6510, which has tri-band HSDPA for up to 3.6MB/s download speeds. At 1.7kg, the S6510 is heavier than ultraportables like Toshiba's R500, but it has the grunt of Intel's Core 2 Duo T7700, 2GB RAM and a 160GB hard drive. Price: $3,199.

www.lifebook.com.au

SHARING THE NTFS LOVE

Mac users and Windows are coming closer together — well, a little bit anyway. Mac users can have read/write access to Windows NTFS drives using Paragon's NTFS for Mac OS X. It supports all versions of NTFS, from Windows NT 3.1 through to Vista, so you can resurrect your old data — if you can find the drives. Price: $29.95.

www.paragon-software.com



Faster data rates finally arrive on RAM

As DDR2 is pushed to its limit, its successor is finally rolled out, but how are the first chips performing, and is it worth going down the DDR3 route just yet?

Nothing ever lasts for long in computing. Not even memories. It may seem like only yesterday that DDR2 had its faltering introduction to the commercial market, but that was actually four years ago. With the specification already nearing the end of its usefulness, its successor has been readying itself in the wings. The time is potentially ripe for the new contender, DDR3, but can it learn from the mistakes of its predecessor and provide a quality upgrade path for the future of computing? As if anything in computing was so simple.

In essence, DDR3 is an evolution over DDR2, with the biggest change being the ability to run the external bus at four times the speed of the actual memory cells. This leads to higher potential bus speeds, and thus higher peak throughput. Conversely, in a trade off, this also means that latencies also increase, which throttles overall performance. There are a few other tweaks as well, including a lower operating voltage of 1.5V as opposed to DDR2's 1.8V, among others.

THE SAME BUT DIFFERENT

This is a new standard, though, and as such it isn't compatible with DDR2. It actually boasts the same number of pins (240), but has the notch in a different place to prevent users forcing the wrong kind of memory into the slots. There are also certain motherboards available which support both types of memory, although the added latencies mean that such designs haven't made much impact so far. Don't be confused by the similar sounding GDDR3 standard, by the way. This specification is exclusively found on graphics cards and gaming consoles, and is basically DDR2 with lower power requirements and higher operating frequencies.

The fact that it is Intel which is spearheading the move to the new memory technology is hardly surprising. The company's constant battle with memory bottlenecks makes it a natural champion of any technology that can offer its products increased bandwidth. Intel has not always backed the right horse in the past, though, and few can forget the whole RDRAM debacle. Even so, with a much broader range of manufacturers onboard, and signs that AMD is set to back this memory technology sooner rather than later, DDR3 looks a lot better than RDRAM ever did.

SPEED KILLS

As is the norm with the introduction of a new memory standard, DDR3 has been launched operating at a range of speeds. What is a little more unusual is that the market isn't being flooded with the slowest chips available. Indeed, DIMMs adhering to the lower DDR3-800 standard are rare, with the majority of manufacturers concentrating on the DDR3-1333 standard. Having said that, the market isn't really awash with the new memory at all. A quick look at your favourite online retailer will reveal that there's little DDR3 out there, let alone a choice of operating frequencies.

At the moment, then, DDR3's biggest driving factor isn't the memory specification itself, but rather the motherboards that require it. Intel P35 motherboards, which are quickly taking an important role in Intel's future processor plans, are currently available in both DDR2 and DDR3 specifications, with the latter option seemingly offering better future-proofing for the consumer. This situation has forced ASUS, for one, to release a special motherboard and memory bundle of its P5K3 Deluxe, while it waits for the memory manufacturers to catch up to the demand. A bold move, but one that has forced ASUS to state that it definitely isn't

DDR3 RAM

Corsair 2GB TwinX 1333C9G

Corsair is clearly a member of the school of thought that says larger heat spreader equals faster memory. And, despite the fact they only have standard timings, these sticks of RAM boast bigger coolers than any other manufacturer here. This has been achieved by extending the cooler above the usually cramped memory slot area. Although this does afford the sticks with better cooling, DDR3 requires less power than its predecessor so this shouldn't be as much of a problem as it previously was. When tested in operation, the XMS memory is surprisingly unexciting. The 9-9-9-27 timings are thoroughly standard, producing figures pretty much indistinguishable from the other offerings. As you'd expect, there is plenty of room for overclocking, but with the timings so high anyway, how far you can push these memory sticks is defined by the other components in your system. On the plus side, these sticks are tumbling in price, and they could soon offer much better value for money.

AS IS THE NORM WITH THE INTRODUCTION OF A NEW MEMORY STANDARD, DDR3 HAS LAUNCHED OPERATING AT A RANGE OF SPEEDS

moving into the memory business, despite the fact that a certain kind of end user would be delighted by the notion.

Indeed, one thing that the more 'enthusiast' crowd has introduced is the notion that performance components need excessive cooling. The memory community hasn't escaped this fad either, and every stick that we've looked at here boasts some form of heat spreader. Heat spreaders are not actually necessary for normal operation, but the general perception is that here is a stick of memory that can go much quicker than what was previously possible. The only tangible benefit to normal users here is that the DIMM is easier to handle.

The introduction of DDR2 all those years ago was the perfect example of a bad launch: the first sticks performed worse than DDR. When it comes to the third iteration, lessons have clearly been learnt, and our tests show that the latest incarnation is at least on a par with DDR2 and, in some cases, in the lead. Add to this the fact that DDR2 weathered its earlier storms to transform into the standard that we are now using, and you can better judge the viability of its successor.

We've benchmarked these sticks using a variety of tests to see how they measure up against each other and also against a standard DDR2 platform. Tests include synthetic benchmarks, but also, and more importantly, what this means to real-world applications. We have used the latest rendition

DDR3 RAM BENCHMARKS	CORSAIR CM3X1024-1333C9DHX	KINGSTON KHX11000D3LLK/2G	CRUCIAL BL2KIT12864AA804	OVERCLOCKED DDR3
Memory Bandwidth Int.	6,633	6,523	5,612	6,731
Memory Bandwidth Float	6,637	6,511	5,569	6,759
Memory Latency (ns)	81	83	52	75
Memory (RAM)	6	6	6	6
Rendering (1 CPU)	502	503	495	504
Rendering (x CPU)	923	936	827	935
C4D Shading	590	592	587	594
OpenGL SW-L	2,099	2,220	2,087	2,107
OpenGL HW-L	5,388	5,511	5,372	5,439
Overall	10,620	10,619	10,398	10,615
SM2.0	4,472	4,469	4,433	4,470
HDR/SM3.0	5,070	5,066	5,061	5,069
CPU Score	2,620	2,625	2,549	2,617
32M Calculations	16m 51s	16m 52s	17m 12s	16m 16s

DDR3 RAM

Kingston KHX11000 D3LLK/2G

Kingston was one of the first manufacturers to push DDR3 sticks out of its doors, indicating that it's serious about making a name for itself with the new standard. As if to back this up, the company has also launched this memory under its KHX brand and labelled these sticks with competitive memory timings (7-7-7-20).

There is some confusion here, though, because despite adhering to the PC3-11000 standard (aka DDR3 1333), these sticks actually have the SPD configured to operate at 1,066MHz. So plug these sticks into your motherboard and elect to go for automatic settings and the memory bus won't operate quite as quickly as you'd imagine.

However, if you increase the memory bus to 1,333MHz, the performance is much more impressive, producing the highest bandwidth score here. It's a shame the SPD doesn't report the correct figures, as many users may miss this trick and end up with sub-optimal performance.

- SUPPLIER Synnex
- ONLINE www.synnex.com.au
- PRICE $999
- VERDICT ★★★★☆

of SiSoftware's excellent Sandra 2007 for testing memory bandwidth and also the effective latency. In order to ascertain the overall effect on system performance, we've used 3DMark06, Cinebench and SuperPi (the latter calculating to 32M places).

We also tested the overclocking potential of DDR3. Even if this isn't an area of direct interest for those looking to build a stable system, the fact that launch memory isn't being pushed to its limit is interesting. If nothing else, it shows that there's plenty of room for performance increases from the memory, but, more importantly, that the latency that seems so unimpressively high in the specifications may actually be artificially so.

We're starting to see reports of much lower latencies as well, around 5, which would quickly put DDR3 on a par with the current DDR2 memories at the same speed. There's clearly a lot of room in the standard already, which is impressive for a launch technology, and could mean DDR3 steals a sizable lead quicker than many would expect.

	CORSAIR CM3X1024-1333C9DHX	KINGSTON KHX11000D3LLK/2G	CRUCIAL BL2KIT12864AA804
Capacity	2 x 1GB	2 x 1GB	2 x 1GB
Spec	PC3-11000	PC3-11000	PC2-6400
Frequency	1,333MHz	1,066MHz	800MHz
Timings	9-9-9-24	7-7-7-20	4-4-4-12
Verdict	★★★½☆	★★★★☆	★★★★½

> THERE IS NO DOUBT THAT THE PERFORMANCE WHICH IS BEING OFFERED BY THESE FIRST BATCHES OF DDR3 IS IMPRESSIVE

WHICH TO CHOOSE?

There is no doubt that the performance which is being offered by these first batches of DDR3 is impressive, and ultimately that's what any memory technology is judged by. While this performance doesn't translate into massive leads in real-world computer performance, this is a memory technology for the future, and with JEDEC dragging its feet over ratifying any future DDR2 standards, DDR3 has a definite edge here. The fact that Intel and AMD have both shown an interest in pushing the DDR3 specification certainly helps its attractiveness as well.

DDR3 is the niche option of the moment, though, and so it does demand a significant premium over its predecessor. A 2GB kit of high-performance DDR2 memory can be found for under $200, whereas purchasing the same amount of DDR3 memory will cost you three times that. The accompanying P35 motherboards are expensive as well, making this a lucrative platform for resellers, or rather an expensive route for those who are looking to build a cutting-edge system. While it's a given that any new technology tends to cost more, even we are a little surprised at the premium being charged here. Given time, though, this should calm down to more sensible levels, and that will be the moment to upgrade.

As of right now, there is no over-riding reason to throw out your current DDR2 platform in order to embrace DDR3, and the cost makes that a marginal choice. But if your current machine dies, and you can justify the upgrade to yourself, then DDR3 does make sense.

Alan Dexter

DDR3 RAM

Crucial Ballistix

As it's important to compare new tech with what is already available, this final pair of memory sticks aren't of the DDR3 variety, but instead are an example of what DDR2 currently has to offer. Costing a third of that of DDR3 memory sticks, there's little doubt that this memory is in a completely different league when it comes to the price-performance stakes. If nothing else, it makes DDR2 the memory of choice if you're looking at going over the 2GB mark, as the alternative is simply too expensive.

When tested in operation, there's still a lot to like about the current standard. While it doesn't offer your computer anywhere near the same bandwidth in Sandra, the real-world tests certainly don't lag behind the newer standard by $350's worth. Whether you're looking to upgrade from a pair of 512MB sticks or even less, or adding to your current stack, this represents a great option. Admittedly, though, it's not going to last you as long or be as future-proof as a stack of DDR3.

The dx2250: a low-cost, off-the-shelf business PC running Linux instead of Windows — and that's all it should be.

apc Highly Recommended

HP Compaq dx2250

Big Linux, business-style.

Adoption of Linux on the desktop for businesses is much trickier than the average Joe installing Ubuntu on his laptop. One of the major concerns for business operators is the support of the OS: not just the software, which has been offered by incumbent Linux distributors like Red Hat and Novell, but the hardware itself.

Though lurking on a forum board or mailing list to get a driver for an off piece of hardware may be par for the course for the home user, an IT department will never stray from the STABLE tree. Maintaining security, ensuring hardware compatibility and to keep those pesky end users from calling with problems, they need to ensure their hardware is fully supported and compatible with robust drivers and software. This happened long ago with server hardware and vendors, but it's been a slow take-off on the desktop side of the fence.

Small and medium businesses are the ideal candidate for adoption of Linux. The lower initial outlay suits smaller budgets, and with a comparable level of support to the incumbent Windows, there's less risk in switching. Dell were the first major supplier to offer Linux on its desktops. Though we're still to see it here in Australia, the uptake where it's offered has been good. HP has come to the party with full support for one of its business-oriented desktops, the Compaq dx2250.

CONTACT	HP
ONLINE	www.hp.com.au/myreseller
MARKET	SMB
PRICE	From $600

✔ A serious Linux alternative.

VERDICT ★★★★☆

✖ Limited to one model.

The dx2250 is a low-cost, AMD-powered mini tower PC, available with Red Hat Enterprise Linux 5 Desktop pre-installed. The hardware and software combination is supported by HP and Red Hat in full, with Red Hat offering its Tiers 1, 2 and 3 support on dx2250 desktops.

We received a unit for evaluation and were pleased with the results. The dx2250 was built with an AMD Athlon X2 4000+ on an ATI Radeon Xpress 1100 chipset. It was loaded with 1GB of DDR2 and a 160GB hard disk drive. Graphics are integrated and around equivalent to an X300: more than ample power for business needs. The dx2550 is also built with a 16xDVD/RW, no floppy and a 10/100 Ethernet connection. AC97 audio and six USB ports make up the whole package.

The Red Hat Enterprise Linux 5 Desktop was pre-loaded, with drivers for all the hardware present and correct, as expected for any system, business, Linux or otherwise.

The system ran like a dream, even considering its relatively low hardware specs. Pre-installed productivity software includes OpenOffice, Firefox and Evolution, which act in place of the typical Microsoft Office, Internet Explorer and Outlook. The good news is OO, Firefox and Evolution are interoperable with the products they replace, so integration of Linux desktops into a Windows network won't mean changing everything.

Overall, we were quite happy with the dx2250. It's a low-cost, off-the-shelf business PC running Linux instead of Windows — and that's all it should be. HP and Red Hat's work on this machine have given small and medium businesses a real option, with real support at a good price. The barrier to the adoption of Linux on the desktop has been lowered once again.

The only milestone left for HP now for a desktop Linux network is releasing Linux-running notebooks for business users. Running a single OS shop is much easier to manage than multiple installs, so migrating mobile users to Linux as well would make the IT department's job that much easier.

The HP Compaq dx2250s are available through its reseller network, with HP not currently offering RHEL as an option on systems bought directly from its web site.

Nick Race

MOBILE MEMORY

As mobile phones turn into media players, they're forcing memory makers to keep shrinking card storage. Apacer has just released a 'miniSDHC' card that complies with the SD2.0 (SD High Capacity) specification but crams 4GB into a space barely larger than a thumbnail. With an adapter, it can work in any existing device using SD2.0 memory. Price: $77.

www.bluechipit.com.au.

ON THE BOX

We've been waiting for years, and now finally digital set-top boxes and TVs are coming equipped with electronic programming guides. What does it mean? With Panasonic's new VIERA plasma TVs and LCDs with digital tuners you can browse the program guide on-screen. If you've got a 2007 Panasonic DVD recorder you can also schedule recordings.

www.panasonic.com.au

SO CINEMATIC

Want pro-movie effects but can't afford the pro price tag? For $268, Apple's Final Cut Express 4 gives you FxPlug cinematic effects and HD editing, including support for AVCHD cameras. When importing a mix of DV and HD formats the software automatically adjusts the footage to fit.

www.apple.com.au

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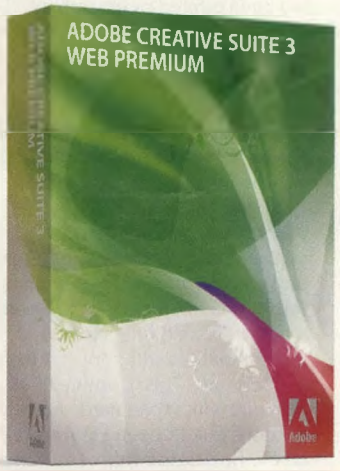

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SERVER DRIVE

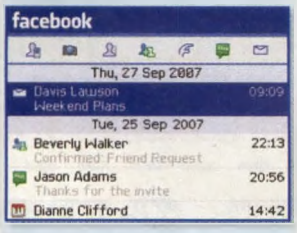
WD has announced a new 750GB drive for servers, the WD RE2, with GB/s data transfer rate, Native Command Queuing and 16MB cache, plus it's reliability-rated at 1.2 million hours (mean time to failure) in high-duty-cycle environments. Price: $429.

www.westerndigital.com

THE STALKERPHONE

It was inevitable that the BlackBerry and Facebook would come together. BlackBerry Smartphones is a free BlackBerry software download providing mobile access to Facebook through a BlackBerry smartphone.

www.facebook.com



ACRONIS BACKUP

Acronis True Image 11.0 Home is the latest version of Acronis' file and system disk imaging backup and restore software for home and home office users. It features the new 'Try&Decide' feature, which creates a secure, temporary workspace on the PC that is insulated from the rest of the computer and allows users to perform potentially dangerous operations in it. Price: $62.99.

www.acronis.com

Core 2 companion

The 975X was ripe for replacement... Long live the X38?

We don't always welcome the arrival of a new Intel performance PC chipset so warmly. The company has a nasty habit of churning out new chipsets so fast the solder has hardly set on existing boards. With the release of its latest mainstream chipset, the P35, Intel left the 975X looking outdated. Enter, the new X38 performance chipset. The most obvious upgrades over the 975X are official support for 1,333MHz bus Intel processors along with the latest 45nm Core 2 chips and DDR3 memory.

The mainstream P35 offers all that; indeed, both chipsets share the same basic ICH9 series Southbridge technology. That brings a minimum of six SATA drive channels, 12 USB 2.0 lanes, Gigabit LAN and Intel Matrix Storage technology among other features. Moreover, the P35 has proven an extremely impressive performer at both stock and overclocked settings. So, why pay more for an X38-powered board?

It's all about the X38's memory controller and CPU I/O chip; the X38 MCH Northbridge. Firstly, Intel claims it delivers improvements to memory performance courtesy of a revised memory snoop feature.

Next up is support for the latest 1,333MHz DDR3 memory. On paper, that gives the X38 an advantage over the P35 which tops out at 1,066MHz. In practice, many P35-based boards cope just fine with DDR3 DIMMs running in 1,333MHz trim. Still, the X38 retains DDR2 support, giving board makers and buyers the option to stick with it until DDR3 prices drop.

The most significant new feature is the introduction of PCI Express 2.0, a first for any PC chipset. The headline feature for PCI-E 2.0 is a doubling of the interconnect bit rate from 2.5GT/s to 5GT/s.

That means the effective bandwidth of a PCI-E 2.0 graphics port doubles from 8GB/s to 16GB/s. The X38 Northbridge sports two 16-lane PCIE 2.0 slots and a full complement of 32 electrical lanes. This feature means a pair of video cards can be linked together for multi-GPU graphics rendering.

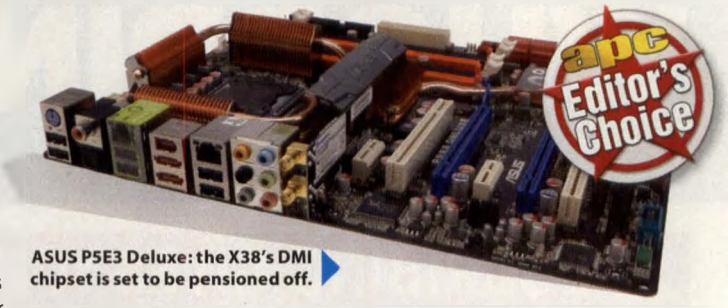
We should also briefly mention rumours of the imminent arrival of the X48 chipset. There's been no official word, but there is gossip to suggest it will be a minor revision that adds official support for 1,600MHz bus chips and DDR3 1,600MHz memory. It could be out in as little as one month.

The P5E3 Deluxe is a beautifully engineered board with passive cooling for the chipset and 100 per cent solid capacitors. It has three physical 16-lane PCI-E slots, and the prospect of running three ATI video cards in Tri-Fire rendering mode.Performance was solid, barring the disappointing memory bandwidth given the 1,333MHz DDR3 support.

A new chipset is an unknown quantity to any board maker and this really showed with Gigabyte's X38-based offering. Stability was a serious issue; running the board to collect basic performance numbers was a challenge. As shipped, it's clearly not of saleable quality. The problems looked like BIOS issues, but we think Gigabyte will have it running smoothly soon so we're not writing this board off in full, just suggesting caution for now.

The first X38 motherboards from ASUS and Gigabyte deliver 1,600MHz bus support. However, it's not guaranteed they will work with any 1,600MHz bus desktop processors Intel launch in the future. If you're worried about X38-based boards becoming redundant, you might prefer not to buy. Then again, with Intel's Nehalem modular CPU architecture coming soon, both the X38 and X48 will be toast in 2008.

Jeremy Laird



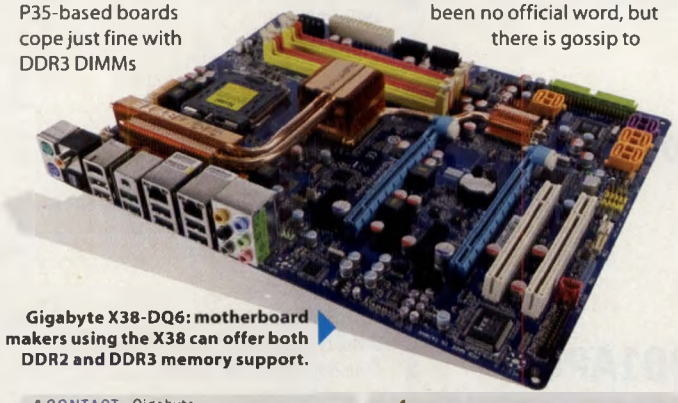
ASUS P5E3 Deluxe: the X38's DMI chipset is set to be pensioned off.

CONTACT	ASUS
ONLINE	www.asus.com.au
MARKET	Performance enthusiast
PRICE	$559

✔ Pre-OS interface; three 16x slots.

VERDICT ★★★★½

✖ Disappointing memory bandwidth.



Gigabyte X38-DQ6: motherboard makers using the X38 can offer both DDR2 and DDR3 memory support.

CONTACT	Gigabyte
ONLINE	www.gigabyte.com.au
MARKET	Performance enthusiast
PRICE	$469

✔ Good expansion, layout; runs cool.

VERDICT ★★★½☆

✖ Stability issues; BIOS revisions.

NVIDIA 8800GT

Is the 8800GT the big jump we all expected?

If there was ever going to be a new model that simply confused everyone, it was going to be the 8800GT. Not only does it carry the new G92 code name for the core, which we didn't expect to see until the next generation of high-end performance cards (9800 Series), but one would also think that its GT naming scheme should put it just below that of the 8800GTS. However, not all is as it seems.

While the G92 does carry some changes over the G80 (previous 8800 cards) it's not the revolutionary next-gen card we thought it would be. Fewer shader processors, less texturing power and not as many ROPs are found in the new core, yet we see an increase in transistors by 73M, taking the total count to 754M. The reason for the increase in transistors is thanks to the new video processing 2 engine being integrated into the core itself instead of a separate chip this time around.

While it may sound bad for the G92 core, it's not. Nvidia has managed to tweak the architecture and now offer a 1:1 texture address units — texture filtering units ratio which was only seen in the 8600GTS previously. The difference is that a higher-end card like the 8800GT is able to make better use of the feature. The G92 introduces us to the 65nm die; in comparison the 8800 series which currently uses a 90nm die, while AMD uses an 80nm die on the HD 2900 series. The smaller die generally means a smaller size, higher clocks and more-efficient cooling.

The card continues to be PCI Express as you would expect, but it also supports the new higher-bandwidth PCI Express 2.0 specification. Don't worry if your motherboard doesn't support the new standard though, as full compatibility is offered to anyone with a PCI Express 16x slot.

This is where everything begins to get confusing: spec-for-spec the 8800GT is almost better than the bigger-sounding 8800GTS every time. The GT carries with it 112 stream processors while the GTS sees only 96. The core is bumped up to 600MHz, which is 100MHz higher than the GTS, and the memory moves from 1,200MHz up to 1,500MHz. While the same GDDR3 memory is used, the bus width has been cut from 320-bit seen on the 8800GTS to 256-bit on the GT; the change in bus width also means that the memory amount has changed so we now get 256MB and 512MB offerings instead of the weird 320MB/640MB we saw for the first time with the 8800 GTS. We also see PureVideo move to the new high-definition PureVideo2 standard; this was a feature that was only seen in the 8600 series and below.

What all of this has done is give us a great-performing card that starts at under $400 for a 512MB offering. The ability to beat the 8800GTS in every situation and climb towards the 8800GTX makes it the new card of choice.

It's not all smiles, however: the new single-slot cooler is extremely loud and does a horrible job of cooling the card in general. With that said, it's still the best value for money video card on the market at the moment — and for $400 there's simply nothing else worth getting.

Shane Baxtor

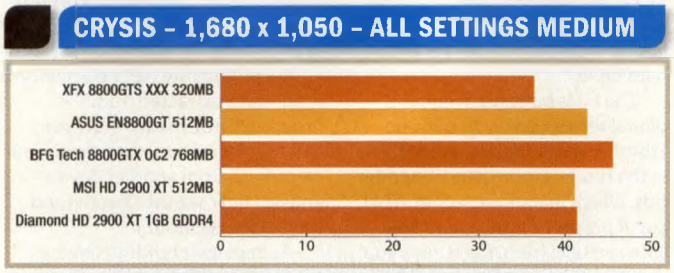
Runs hot and loud, but still the best value for money on the market.

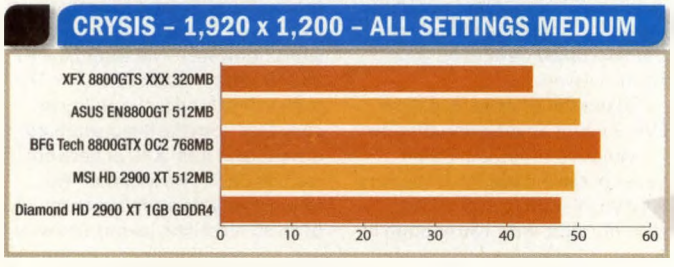
CONTACT	ASUS
ONLINE	www.asus.com.au
MARKET	Everyone
PRICE	$349

✔ Single slot; extremely good value.

VERDICT ★★★★☆

✖ Runs hot and loud.





MOVING PICTURES

Fearless (or foolhardy) prediction: still images in frames, such as photos and paintings, will become museum pieces within a few years. Transcend is the latest to join the market with its T.photo 710, which puts a high-res 7in (480 x 234) TFT flat-panel display into a frame and displays digital photos entered into its 1GB of internal memory. Availability and pricing TBA.

www.transcend.com

NEW FULL HD PROJECTOR

Just as Pioneer has improved on possibly the best HDTV in the world, Epson has now improved on its superb 1080p projector with the release of the EMP-TW2000. It uses a new optical engine that produces richer and deeper blacks and more colours and tones by increasing the native contrast ratio of the projector. Price: $4,999.

www.epson.com.au

AFFORDABLE IP GATEWAY

Linksys has released the SPA8000, an affordable IP Telephony Gateway, which features eight RJ-11 FXS ports, allowing users to connect analogue telephones to IP-based data networks. The device also has an Ethernet interface for a router or multi-layer switch and single multi-port RJ-21 50-pin connector. The SPA8000 can also be remotely provisioned and supports dynamic, in-service software upgrades. Price: $399.95.

www.linksys.com.au

FLOATING ON GLASS

The push to turn PCs into TVs continues, this time in the form of Sony's very chic LM series Vaio notebooks, which double as wall-mounted TVs. Taking their styling cues from the Bravia, the LM 19in screen is integrated with the rest of the machine in an all-in-one design that's vaguely reminiscent of the iMac. We struggle to understand how they call it a notebook though. Price: $3,499.

www.sony.com.au

PRINT IT ALL

It's certainly easy to pick up a cheap printer these days (just watch out for the ink costs). Brother's staggeringly good value DCP-350c is an all-in-one small home office inkjet that does colour photos, scanning, copying, and 30ppm mono printing. It is PictBridge enabled for digital cameras and has an LCD preview panel. Price: $199.

www.brother.com.au

Beyonwiz DP-P1 & DP-H1

There's plenty of new HD PVR options from Beyonwiz.

After the all-singing, all-dancing Beyonwiz DP-S1 set a new benchmark for personal video recorders in Australia, Beyonwiz has followed it up with two stripped-down companions, the DP-P1 and the DP-H1.

The original DP-S1 ($1,599) is a combination dual-tuner HD PVR, DVD player and wired/wireless network media player. The new models are also HD PVRs as well as network media players, similar to the Apple TV.

Thankfully they aren't reliant on software like iTunes, so they can read files from any computer on your home network or directly from a network-attached storage device. Depending on the model, they can also play files from CD/DVD, USB device or SD/MMC/Memory Stick/CompactFlash memory card.

The new DP-P1 and DP-H1 look identical, but the P1 lacks the DVD player and Wi-Fi, while the H1 also lacks a memory card reader and hard drive.

The H1 is basically a high-def digital set-top box with USB and Ethernet ports. It's designed to live in the rumpus room as an extender box, which means the lack of Wi-Fi could present a problem. Along with live television, the H1 lets you watch multimedia files from USB/network devices and recordings from Beyonwiz devices on your home network.

To use the H1 as a standalone PVR, it needs an external USB drive — without one you can't even pause or rewind live TV. At the very least you'll want to add a USB memory stick, with 1GB enough to buffer eight minutes, 40 seconds of SD television whilst paused. Like the other Beyonwiz units, the H1 can automatically download IceTV's seven-day Electronic Program Guide ($99 per year from **www.icetv.com.au**), but you need a USB device attached if you want to schedule recordings.

The Beyonwiz units have the grunt to record two high-definition programs, whilst watching a third, without skipping a beat. Streaming video doesn't fare so well. Using the H1 to watch a show recorded to the hard drive of the P1, the video became unwatchable, even via Ethernet if the P1 was also recording one channel whilst watching another. When playing a recording stored on another device, you can't fast-forward or ad-skip.

Recordings are named according to the data extracted from the broadcast, but, frustratingly you can't see this when you browse your recordings from another device — you can only see the channel and time of the recording.

As Beyonwiz tends to release products half-finished, the first thing to do is check online for the latest firmware — we tested the P1 and H1 using version 01.04.114. This release finally adds the ability to copy files from the Beyonwiz hard drive to and from a PC or network storage device via Ethernet. We found it very slow, with each minute of an SD recording taking almost as long to copy to our Maxtor network drive. The latest firmware also lets you watch a DVD and record TV at the same time on the S1.

Unfortunately, several of the Beyonwiz's shortcomings are yet to be addressed. Picture-in-Picture still doesn't work. You still can't set an automatic margin for error for scheduled recordings, in case the show runs late. You can't tell it how to intelligently manage disk space. You can still accidentally change channels whilst timeshifting, causing you to lose what's in the buffer. While some of the bugs have been ironed out of the media player, it still lacks the polish and elegance of something like the Apple TV or even Microsoft's Media Center. The Beyonwiz interface can also be overly complicated and is not something you'd inflict on tech-illiterate relatives.

The P1 makes a lot of sense, dropping the DVD drive and Wi-Fi to match Topfield's TF7000HDPVRt pricewise whilst still beating it on features.

The H1 probably makes even more sense if you don't need to record, or if you put the $400 saved towards a 500GB USB drive which can be upgraded later without voiding the warranty (unlike the P1's 200GB internal drive). There's still work to be done on the firmware, but the Beyonwiz range is finally starting to reach its full potential.

Adam Turner

CONTACT	Digital Products Group
ONLINE	www.beyonwiz.com.au
MARKET	Everyone
PRICE	DP-P1 $1,099; DP-H1 $699

✔ Twin HD tuners; Ethernet.

VERDICT ★★★★☆

✖ Still waiting on firmware updates.

Chimei 222H 22in LCD

Plug everything in.

Chimei have a reputation. A good reputation for selling decent-quality, low-price LCD screens without the frill of more expensive brands. The 222H is a bit of a change from that tactic, adding enough functionality to choke even the most jaded PC enthusiast.

The 222H is a 22in wide-screen LCD running at a native resolution of 1,860 x 1,050, with a claimed contrast ratio of 1,200:1 and a 5ms response time. The 16:10 aspect ratio is less than HD resolutions, so keep that in mind if choosing this one as a second telly. In testing, the picture on screen looks sharp, but the colours are a little washed out for our taste, especially compared to shiny coated LCDs. There's also a small amount of light leakage at the top and bottom of the screen's image, but nothing too dramatic.

Where the 222H shines is in the connections available. This monster is loaded with VGA D-Sub, component, S-Video, composite and HDMI. There's also a six-in-one card reader to bulk out the spec list.

But something missing? The 222H forgoes a standard DVI connector for the HDMI — which can be a bit shocking if you aren't forewarned. DVI to HDMI adaptors are reasonably easy to buy in the shops, but make sure to have one sussed out in advance to avoid frustration.

All in all, the 222H would make a great screen if you expect a lot from your monitor. As a straight-up PC monitor, then the connectors are just adding extra cost.

Nick Race

CONTACT	Protac
ONLINE	www.protac.com.au
MARKET	Everyone
PRICE	$599

✔ Loads of connections; good price.

VERDICT ★★★½☆

✖ A bit washed out; no DVI connector.

Centurion DiscHub

Store, read and record one hundred DVDs.

Storing large amounts of optical media is a chore. Whether it's audio, data or video, physically managing a collection, looking through them, cataloguing discs and getting your hands on them quickly is a task that most don't wish to deal with.

The Centurion DiscHub is made to take the effort out of it. The unit holds 100 CDs or DVDs in a rotary carousel, then feeds the disc in to an optical drive when you need it. Therein lies the major strength and the major weakness of the Centurion DiscHub. Though it can catalogue your optical discs, there's no method of integrating it in to the OS, so you're back to looking up the database and pulling out the disc when you need it manually.

Though Centurion advertises the model as a replacement for tape as a backup medium, it's not going to cut it unless the integration between the backup software and the MediaTracker software is created; otherwise, when a disc is full, you're back to manually changing it (through the software at least).

If you consider the original, it's like going back to 8.5GB tapes and the autoloader doesn't work. The key difference is the DiscHub's contents are searchable through a database, and single file restoration is much, much easier.

As an offline storage solution, the DiscHub represents great value for money. At $799 for 850GB of storage (plus media costs, naturally) it beats tape hands down. But whether or not the manual interaction is something your business can cope with is an expense that can't be calculated. Also, make sure the optical media you choose is of archival quality, as the lifespan of cheaper media can be questionable.

Nick Race

CONTACT	Centurion CD
ONLINE	www.centurion-cd.com.au
MARKET	SMB
PRICE	$799

✔ Works as advertised; convenient.

VERDICT ★★★½☆

✖ Hard to think of a usage model.

MIGHTY KEY

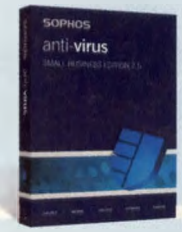
From the mine-is-bigger-than-yours department comes Corsair's new 32GB Voyager USB key. That's right, a whopping 32GB, which means that some people might be able to ditch their portable hard drive. Comes with a lanyard and USB cable and TrueCrypt encryption. Price: $429.

www.altech.com.au

VIRUS HELP

Sophos has updated its small business virus suite, which now monitors inbound and outbound email for customers or financial data. The mail filtering also covers spam and malware and now works with Microsoft Exchange 2007. The suit also supports Vista and Mac OS X 10.5 Leopard. Price: $53.80 ex-GST per user per year for a three-year licence.

www.sophos.com.au.



PHOENIX SUPPLY

Another potential disaster many small businesses might not be prepared for is a server meltdown. StorageCraft ShadowProtect gives you peace of mind by allowing constant backups every 15 minutes. StorageCraft claims quick file recovery, but the key is the ability to recover to a separate server (ie. the one collecting dust in the backroom). Price: $599 per server plus annual maintenance.

www.storagecraft.com.au

Web access anywhere

The latest set of mobile internet devices reflects the diversity of choice available.

Pepper Pad 3: One of the latest web-mobile devices.

No self-respecting geek would be without the means to connect to the internet when on the move these days; it has become the norm to be constantly connected. Access has become like an intravenous drip for doing the tasks that matter most to us. The laptop is currently the most direct approach to mobile access, while the most compact is the mobile phone. Both have benefits and drawbacks, and more people are now turning to the growing number of devices that offer an alternative way of browsing and emailing while on the move.

Sony Ericsson's P1i represents the mainstream: a smartphone design that attempts to address that form factor's biggest flaws for internet access, created by its own compactness. Then there's the Archos 605 Wi-Fi, a personal media player with the option, for around $60 more, of adding a web browser. Nokia's N800 is similar but more overtly internet-oriented, with RSS, IM and email support alongside its browser. Finally, there's the Pepper Pad 3, an outsized tablet designed for sofa browsing more than genuine on-the-move use. The manufacturers of all four devices have to meet three significant challenges to create the ideal mobile internet platform: connectivity, experience and text entry.

CONNECTIVITY

Internet access away from the home or office used to depend on finding a rare wireless hotspot or having the patience to use a slothful GSM data connection — and neither was easy to set up. Now there are thousands of free or pay hotspots available nationwide and a far smoother experience via mobile phone networks. The P1i is a good, if not perfect, example of the latter. It offers 3G access if your tariff supports it, although you're left with GSM otherwise. There's no support for '2.5G' protocols such as EDGE. Nokia's N800 doesn't even have a connection protocol of its own — it gets its connection from a Bluetooth-attached mobile phone.

The truly ubiquitous option, however, is Wi-Fi, which is available in each of these devices. Connection speeds are typically fast and network points are easy to find, even if networks are all-pervasive. It's also worth noting that US carrier Sprint will offer a custom version of the N800 next year, configured to work on the company's inaugural Wi-Max network in 2008 — it should be a potent combination.

Pleasingly, connecting to a Wi-Fi network through any of these devices is much easier than

MOBILE NET

Nokia N800

There's a lot to admire about the N800's elegant design: it's pocketsized; its 4.25in screen is more comfortable to read from than any smartphone we've seen and it offers clever details, such as an integrated desk stand and a popout webcam lens. There's also some compelling technology included in the N800. The Internet Tablet 2007 operating system supports Microsoft and RealNetworks' audio and video as well as the expected open standards; the 802.11g node was powerful enough to pick up two Wi-Fi networks in our test location which most laptops could never find; and the virtual keyboard automatically configures itself to finger or stylus typing. But not every aspect of this device is perfect — its control buttons, particularly those on the top edge, are fiddly. The interface is a confusing mishmash of single-function applets and superfluous detailing where simplicity and legibility are needed. If you can put up with these frustrating problems, though, you'll find the N800 a useful accessory to have on you, just for its ability to find a network in most places.

CONTACT	Nokia
ONLINE	www.nokia.com.au
MARKET	Everyone
PRICE	$539

✔ Powerful Wi-Fi; great screen.

VERDICT ★★★★½

✖ Fiddly buttons; poor interface.

MOBILE NET

Hanbit Pepper Pad 3

Appearances can be deceptive when it comes to the Pepper Pad 3. Its chunky, glossy enclosure could have come from the Fisher Price design school, and touches such as the rubber stylus holder below the 7in screen only reinforce the product's toy-like feel. For core internet use, web, email and IM are available through dedicated tools, although the latter supports only the AIM protocol. The web browser is based on Firefox 1.5 and includes a Flash plug-in, so it can cope with the majority of web sites you might want to visit with the Pepper Pad 3, and pages display rapidly via the pad's 802.11g link. Email supports POP and IMAP, and new accounts are easy to set up. Out of the box, the Pepper Pad 3 is simple to use but limited in its file format support. But it's still a Linux device at heart, and the flexibility that implies is hidden rather than removed. This is the second most expensive device we've looked at, but the forums for Pepper Linux, the variant driving this machine, provide plenty of hacking advice, making the Pepper Pad 3 a potent, mobile geek platform.

CONTACT	Expansys
ONLINE	www.expansys.com.au
MARKET	Everyone
PRICE	$845

✔ Powerful; Firefox-based browser.

VERDICT ★★★½☆

✖ Limited file format support.

it was a few technological generations ago. But after its lack of support for 2.5G, there's another minus point for the P1i: bizarrely for a 2007 release, it uses only 802.11b compared to 11g for the other three. The N800 is worth mentioning for its outstanding sensitivity to networks — finding network hotspots that others couldn't.

EXPERIENCE

Of the devices reviewed here, the Pepper Pad 3 offers the most PC-like experience, with a Firefox-derived browser that supports tabs, pop-up blocking and Flash — as well as a display big enough to cope with pages designed for a PC's scale.

Yet both the N800 and the Archos 605 Wi-Fi show that pocket-sized browsers need not be an oxymoron: most pages look as you'd expect them to, even if scrolling around the more complicated designs becomes tedious. The N800 offers the benefit of an RSS reader for sites whose web face is too awkward to contemplate.

With its 2.5in screen, the P1i can't possibly compare — and it doesn't. Even in landscape mode (accessible by holding the stylus on the screen to bring up a contextual menu) you'll need to seek out sites with mobile HTML or WAP configurations to make any sense of the content. The P1i does much better at email, however, with support for business-oriented protocols like BlackBerry Connect as well as the more usual POP and IMAP.

Both the N800 and the Pepper Pad 3 cater not only for email but also for instant messaging, even if neither offers the breadth of protocols that would make their IM support genuinely useful. And it's a good job that the Archos 605 Wi-Fi's web browser is pleasant to use, because that's all you're getting. We hope your webmail service is up to par.

TEXT ENTRY

As social networking has grown to such enormous levels, it's clear that efficient text entry is no longer a luxury. The P1i offers the most options, with a physical keypad, a virtual keyboard and handwriting recognition as well.

The keypad is ostensibly QWERTY, although having to press a key in different directions to get the character you want is hardly designed for speed typing. The Pepper Pad 3 also offers a physical QWERTY keyboard, its tiny keys split across either side of the screen. It looks awkward but manages to be surprisingly effective.

The N800's virtual keyboard option is delightful: the operating system senses whether you've clicked in a text field (the trigger for the keyboard to appear) with the stylus or your fingertip, and produces a keyboard layout sized to match.

Both the N800 and the 605 Wi-Fi show that the mini-tablet design offers the best balance of size and usability for a truly mobile internet device. Judging by the P1i, the smartphone remains too compromised by its compact size to offer a web browser you might actually want to use.

Richard Hill

When buying mobile internet devices, make sure they have support for finding networks.

MOBILE NET

Sony Ericsson P1i

With a lovely finish and a pleasing weight, the P1i is a pleasure to hold. It packs some mighty technology too: there's a 3.2-megapixel camera with autofocus, and the phone's connectivity is unrivalled among this quartet, with 2,100MHz UMTS (network-dependent) and Wi-Fi – although only 802.11b is supported. The P1i runs UIQ 3.1 and the interface is clean, but item selection has become fussy and response is sluggish. Support for business-friendly protocols such as BlackBerry Connect is strong. As you expect from any device with a 2.5in screen, though, web browsing isn't comfortable: you'll get the best experience by choosing sites with WAP support or a mobile HTML mode. With its dual-direction character selection, however, the keypad is the P1i's most controversial feature. It's a good job you also have the choice of handwriting recognition and an onscreen keyboard. It may have an enticing array of features, but the P1i is unrewarding to use.

CONTACT	Sony Ericsson
ONLINE	www.sonyericsson.com.au
MARKET	Everyone
PRICE	$1,099

✔ Great design; 3.2MP camera.

VERDICT ★★★☆☆

✖ Small screen; how much?

MOBILE NET

Archos 605 Wi-Fi

This metal cased, wide-screen media player is part of the fifth generation of devices from one of the founders of the market. Its 800 x 480 touchscreen is bright and pin-sharp. A column of rocker buttons down the right-hand side work with a good menu system to control playback of movies, audio and photos – you can use the unit to transport data files too. There are three hard drive capacities of 30GB, 80GB and 160GB available, so it's easy to take complete movies with you. The player is Wi-Fi enabled as well, so you can download media from the Archos content portal, which looks like an iTunes wannabe. The 605 Wi-Fi plays MPEG-4, MP3, WMA and WAV as standard. To hit the price point, it appears Archos has cut a few corners. There's no mains charger, so you have to have a USB socket in something to recharge its 17-hour (audio) battery and some of the software you might expect is missing. The Opera web browser, specially designed for Archos, is a $30 plug-in, and AAC and DVD codecs are $10 extras, each.

CONTACT	I-Tech
ONLINE	www.i-tech.com.au
MARKET	Everyone
PRICE	$599 (30GB)

✔ Great screen; a dream to use.

VERDICT ★★★★½

✖ Add $50 for browser and codecs.

PHOTO PLAY

If you're a photographer and not a fan of Vista's Photo gallery, check out ACDSee. The Pro 2 version is good for batch processing, format conversions, and comes with a Light EQ tool for fine-tuning up to nine tone bands. Not cheap, but for heavy-duty photo work, the results are worth it. Price: US$129.99.

www.acdsee.com

ORGANISE ME

Can a database be stylish? FileMaker is offering a preview download of Bento, its personal file manager for Mac OS X 10.5. In theory, Bento will display your address book and iCal entries without you laboriously typing it all in. Another database on top of your email, calendar, and files? We'll let you be the judge — the full version is expected January 2008.

www.filemaker.com.au

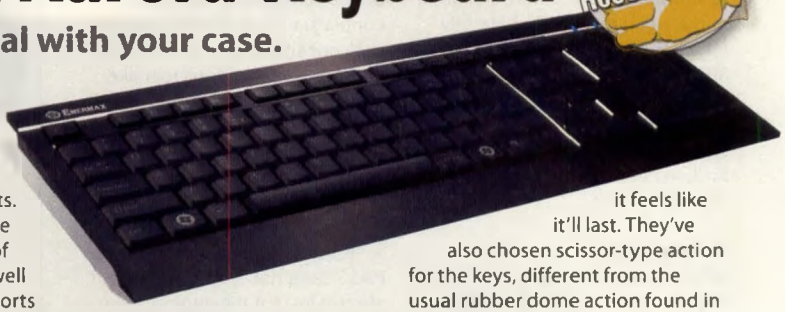
PORTABLE PICTURES

Here's a great cheap alternative to spending thousands on a laptop for DVD playback around the house. TEAC's DVP388G Portable DVD Player has twin 8in monitors and Dolby Digital Surround. It can also show JPEGs and has a car plug. Price: $399.

www.teac.com.au.

Enermax Aurora Keyboard

Match the material with your case.



Keyboards aren't often reviewed here at *APC*, and those that tend to get a look in are the ultra high-end (and expensive) gamers' delights. Invariably, these keyboards have way more than their fair share of extra buttons and controls, as well as novel additions, like power ports for add-ons, LED displays or programmable interfaces.

Enermax's new Aurora keyboard doesn't have any of these things (though it's still expensive), but what it does have is plenty of key-pounding goodness. This keyboard is a straightforward 104-key Windows keyboard with a USB 2.0 hub, as well as headphone and microphone pass-through ports.

Now it sounds fancy, but we view these additions to the keyboard as logical and extremely practical. No more digging behind PCs for another USB port.

What sets the Enermax Aurora aside is its construction material. The keyboard is aluminium — the same grade with which Enermax's cases are constructed. This gives it a good heft, a thin profile and it feels like it'll last. They've also chosen scissor-type action for the keys, different from the usual rubber dome action found in most keyboards. This gives it the feel closer to a notebook's keyboard, which could be a real sticking point for some people. The keys are well laid out, but there isn't much travel to them, so you'll find yourself hitting the keys harder than you need to until you're used to it.

Overall, we like the first jump by Enermax into the keyboard market. It feels like a solid product, meets all its design goals and there's no major complaints about its usability or usefulness. What more could you want in a keyboard?

Nick Race

CONTACT	Actiontec
ONLINE	www.actiontec.com.au
MARKET	Everyone
PRICE	$89

✔ Aluminium construction; price.

VERDICT ★★★★☆

✖ Types like a notebook keyboard.

Canon Pro9500 A3+ Printer

When 6 x 5in just isn't enough.

The standard size photo printout is something that can be found at family get togethers around Australia and the world. The ease and speed of developing family and holiday photos in whatever quantity you want from the comfort of your own home has been one of the major influences behind digital camera adoption.

It's all well and good, until you realise that the moment you want anything bigger, it's back down to the photo lab for the same old song and dance. But is this for everybody? We can't see it. The PIXMA Pro 9500 is a very large, very slow, but very good-quality printer capable of printing A3 photos with excellent results. Considering the price tag of $1,399, it's relatively inexpensive given the quality of the prints produced (and their size) but might be a bit rich for the occasional photo of little Sammy wearing his favourite cowboy hat. But photographers both serious and amateur should take note.

The Pro9500 produces A3+ sized photo prints on glossy and semi-glossy photo paper using ten ink tanks, including three for black alone (photo black, matte black and grey). We tested the Pro9500 using some high-resolution digital camera photos and found the results on photo paper to be very good to excellent. Where we were really impressed was printing on another Canon paper: 'Fine Art Photo Rag'. Results from this non-glossy, heavyweight and rich paper were outstanding.

If you can swallow the price tag and the ongoing costs at producing such large prints, this should be on your wish list.

Nick Race

CONTACT	Canon
ONLINE	www.canon.com.au
MARKET	Performance enthusiast
PRICE	$1,399

✔ Great quality prints at home.

VERDICT ★★★★☆

✖ Not cheap; very large.

Toshiba Portege R500

Huge battery life — just not that huge.

Toshiba claims a whopping maximum of 12.5 hours for this tiny sub-1kg machine, and it's an impressive figure — trouble is, we don't think it's anywhere realistic.

We got about five hours of battery life with our review unit, which included a solid state hard drive. That is stonkingly good performance — most machines we review don't come anywhere near that mark. Still, it's less than half the quoted battery life. In Toshiba's case they recommended we turn off the screen backlight and turn Wi-Fi off — it saves battery life, but it makes the screen difficult to see indoors.

We tried Toshiba's approach, but the closest we achieved was nine hours, twenty minutes. That sounds great till you consider the notebook screen was dark, and we left the machine idle the whole time. Using the same power save settings, but turning on Wi-Fi and making the screen brighter, occasional use saw the battery last for five hours.

Battery gripes aside, this is still a great machine. It's very light and skinny thanks to the LED backlit screen and slim optical drive. The screen is 12.1in, and our review model came with Intel's Core 2 Duo ULV UT7600 chip (1.2GHz), 2GB RAM and a 120GB drive. Like most subnotes, performance isn't great in power-saver mode, but it copes with basic desktop tasks.

The R500 is more expensive than LG's 1kg A1 Express Dual, which you can find online for just under $3,000, though the value's reasonable, considering the LG we had 1GB RAM, an 80GB drive and a smaller screen.

It can't match 13.3in portables like Dell's XPS M1330, though, which pack in much faster components for under $3,000. The only advantage for the R500 is size.

A note about the slimline optical drive: we had several faulty drives. Normally we'd put this down to a dud machine, but after seeing several duds, we started to wonder why. These notebooks had been used before, so there's no telling if they were faulty out of the box. Be sure your retailer will accept returns.

William Maher

CONTACT	Toshiba
ONLINE	www.toshibanotebook.com.au
MARKET	Everyone
PRICE	$3,520

✔ Big battery life; very light.

VERDICT ★★★★☆

✖ Typically underpowered.

Palm Treo 500v

Full email and no business price premium.

RIM's BlackBerry revolutionised the way businesses communicate. With email being available outside the office, it changed from an online-only to an everywhere model. But business isn't the only place where email is widespread: people are starting to demand the same access to their personal inboxes.

With the widespread usage of text messaging, as well as phone-based IM communication, people are comfortable with mobile messaging in general, so it's only logical that manufacturers start the switch to email-based communications on phones.

Palm have targeted this group of users directly with the Treo 500v phone. A mid-priced, Windows Mobile 6 handset, the 500v is designed for personal use, but with email and messaging as a primary goal. It sports a 320 x 240 pixel transflective display, a full qwerty keyboard and MS Office (including Outlook) for email messaging. All this in a 120g parcel with claimed 4.5-hour talk time.

In our hands, the Treo 500v was a mixed bag. The screen was outstanding and easy to read in bright light and outside. The keyboard, though bubbly, was easy enough to use. It does take a bit of pressure to hit a key though, slowing typing down at first. The device felt a little underpowered, with the phone sluggish to move through the menus.

All in all, the Treo 500v absolutely hits its targets as a mid-priced, everyman's email handset. It's not perfect, and is best-suited to the more patient among us, but it's a great effort from Palm.

Nick Race

CONTACT	Palm
ONLINE	www.palm.com.au
MARKET	Everyone
PRICE	$749 upfront from Vodafone

✔ Great screen; good price.

VERDICT ★★★½☆

✖ Sluggish.

HOT CARD

GECUBE has released its new premium graphics card product based on ATI's new-generation HD2000 series, the advanced ATI Radeon HD 2900 GPU. There's built-in HDMI support, 5.1 surround sound, DX10, GDDR3 512MB and VIVO.

www.gecube.com

AFFORDABLE NAVMAN

Navman has packed all the fundamentals into its new entry-level S30 GPS device, including comprehensive Sensis maps of Australia, preloaded speed and red light camera alerts, and a touch screen. Price: $399.

www.navman.com

SMART WEB PRINTING

HP has a tradition of producing great software utilities for its own products, which it then releases for free. The latest one is HP's Smart Web Printing plug-in for Internet Explorer, which improves on IE's ability to print web pages. It allows users to easily select web text and graphics and combine portions of numerous web pages, to print as suits.

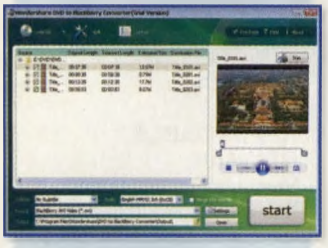
http://tinyurl.com/2h39wl

hp
invent

BLACKBERRY ECOSYSTEM

The Wondershare BlackBerry Converter Suite lets users put their DVD movies and video files on their BlackBerry phones. It converts DVD movies and regular video files to BlackBerry video AVI, 3GP, AVI and WMV and extracts audios from DVD and video files to BlackBerry audio MP3, WMA and AAC. It also provides editing functions. Price: $39.

http://tinyurl.com/2nxhxv



HATE OFFICE 2007?

If you've given up trying to adapt to Office 2007's new menu system, Addintools has a Classic Menu for Office 2007 v3.51, an add-on for Microsoft Office 2007 that brings back the 'classic' Microsoft Office 2003 interface, but with all the new features of Microsoft Office 2007. Price: US$29.95.

www.addintools.com

INFOCUS N10

Small but packing a big punch is the tiny InFocus Work Big IN10 DLP portable projector. Weighing 1.09kg, it can generate 1,800 ANSI lumens of brightness for its XGA resolution. Price: $2,699.

www.infocus.com

BenQ SP831 Projector

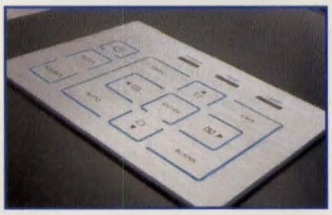
Is using a split-screen the best approach for a projector?

From boardroom to bedroom, the multimedia projector can be a very versatile beast: you can use it to show off PowerPoint presentations, watch movies or even play video games. No wonder it's the best-selling kind of projector you can buy. The problem is most multimedia projectors only let you do one of these things at a time.

Some projectors get around this by offering a Picture-in-Picture (PiP) view where material from a second source can be displayed in a small box in one corner of the main screen. This can be handy if you want to introduce a second speaker during your presentation who can appear via a webcam. But what many presenters really want is a 50-50 split-screen Picture and Picture (PaP) mode that divides the presentation down the middle, enabling your audience to see two different kinds of information.

This could allow you to show a corporate video and display key facts about the company's history at the same time, or a presentation for a multi-language audience: you could use split-screen to show the same information in English and Hindi, for example. You could even use it for multiplayer gaming with two people playing on different machines but using one display.

Ideally the split-screen view should be variable, so you can draw attention to a particular part of the presentation by enlarging the view on one half of the screen, or even filling the whole screen with it. This requires the projector to have intuitive controls, and images need to be presented without visible distortion.



Some nice styling cues, but it's just a shame that the controls aren't backlit.

Tries to please both corporate and home users, but doesn't quite pull it off.

CONTACT	BenQ
ONLINE	www.benq.com
MARKET	SMB
PRICE	$4,999

✔ High brightness.

VERDICT ★★★☆☆

✖ Low contrast ratio.

To take advantage of PaP, you will of course need two video sources — two laptops or a laptop and a DVD player, for example. And that's something that could be problematic if you're taking your presentation on the road. The projector will also need to be doubly accomplished at carrying out these varied tasks: your presentation needs to be bright, white and clean enough for it to be easily read in a boardroom, while video presentations often require the opposite: a high-contrast picture capable of delivering a wide colour gamut with deep blacks, and a darkly lit room.

The solution is fairly simple. Most multimedia projectors use Digital Light Processing (DLP) technology developed by Texas Instruments. DLP has the ability to serve up bright, razor-sharp images for presentations and yet still deliver when it comes to video performance.

The best projectors feature Texas Instruments' Dark Chip 3 processor which delivers truly cinematic black levels. One feature to look out for on single-chip DLP models is a six-segment (RGBRGB) colour wheel. These virtually eliminate the 'rainbow effect' that can occur with less-capable DLP models — something that's often seen when your eyes pan across an image. Three-chip DLP models don't suffer from this particular problem.

BenQ is claiming a world first for the split-screen on this DLP projector, although Toshiba arguably got there first with the now discontinued TDPT250. BenQ's split-screen mode has a degree of flexibility, allowing you to see two identically sized but different views, or to resize either half of the screen to give more focus. The problem is that the one half is then distorted to make way for the other, giving you a less-than-optimum viewing experience. Picking the right mode can also be tricky as none of the buttons are backlit.

Elsewhere the SP831 is a competent, rather than startling, performer. For presentations, its 4,000:1 ANSI lumens is bright enough for boardrooms, while BrilliantColour technology ensures strong PowerPoint colours. Video images are rendered cleanly and largely accurately but are let down by a miserable 2,000:1 contrast ratio. Soupy greys mean you'll struggle to pick out detail in dark areas of the picture with Blu-ray movies like *Ghost Rider*. The absence of an HDMI input will also disappoint cinephiles.

Rob Mead

Kaspersky Internet Security 7.0

Kaspersky gets a facelift.

KIS 7.0 is a security suite designed to take care of everything. It features file, mail and web antivirus protection, anti-spam control, a proactive defence system which deals with unknown threats, controls program execution and access to the Windows registry. There is a firewall with an intrusion detection system and a privacy control system which is responsible for anti-phishing and protection of confidential data.

In terms of virus and malware protection, KIS 7.0 performed similarly to its predecessor — which is to say that it was good. It was able to find and destroy 627 viruses out of 633 in the first test and 686 out of 697 in the second test. Similarly, malware detection was excellent.

Unfortunately, anti-phishing performance was not entirely satisfactory. We were able to navigate and use fake PayPal web sites — and other phishing sites from phishtank.com — without KIS stepping in. This is disappointing, as other suites do a better job.

On the bright side, KIS 7.0 features a new and long-awaited parental control feature. It allows the user to set profiles and block various categories of web sites. It worked well for individual sites, but we were able to bypass it via, for example, Google Images. Parental control also allows the user to set a daily time limit for internet use.

Jumping to version 7.0, KIS has had a facelift. It now looks more professional. If you are running KIS 6.0 already then this update isn't warranted. Otherwise, if you are looking for a new security suite, KIS 7.0 has everything you need.

Peter Sbarski

The GUI has had a facelift and now looks a lot better.

CONTACT	Kaspersky Labs
ONLINE	www.kaspersky.com.au
MARKET	Everyone
PRICE	$94.49

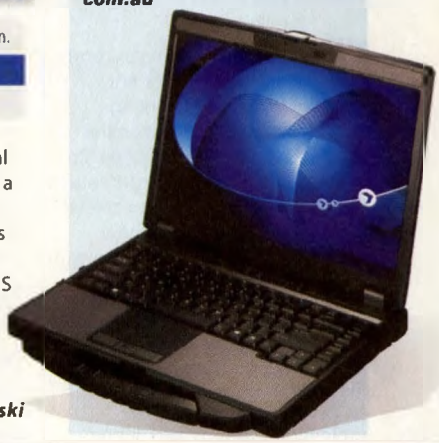
✔ Great antivirus/malware protection.

VERDICT ★★★★☆

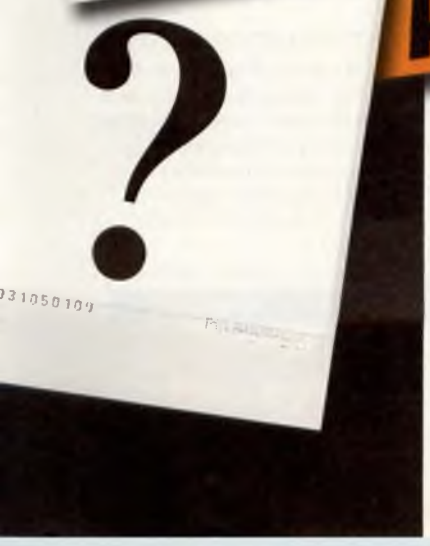
✖ Anti-phishing could be better.

TOUGH STUFF

Whitebox notebooks are a dime-a-dozen, but 'ruggedised' units are a breed of their own. Pioneer is raving about its DreamBook tough P47, which has water-resistance, rubber doors and a shock-mounted screen and hard drive. We like the concept, though we're not sure the 76cm drop-proof rating will suit tall people. Price: from $3,999. ***www.pioneercomputers.com.au***



GET WRAPPING WITH 'VoIP CAUTION TAPE' AND WIN UP TO $6,000!



Here is how you can win $6,000 for the best entry and runners up prizes of $3000 & $1000

- Go to www.acpmag.com/unified and download your 'VoIP caution tape'.
- Print as much tape as you like.
- Do your best or worst and find 'something' to wrap in the tape. You could try something in your office or something seriously large, it's up to you.
- Photograph your handiwork.
- Upload your photo on www.acpmag.com/unified

The competition runs from 15 November 2007 to 15 January 2008. NOW GET WRAPPING!

So put on your creative cap, let your imagination run wild and get set to wow the judges. The best, most creative entries will be posted live. Multiple entries are welcome.

APC roundup: business networking

Networking sites like LinkedIn claim to boost your career and help you get a new job, but do they really deliver?

Business networking purports to offer a very different function to social networking. Forget photo sharing and online dating, the market leader LinkedIn (**www.linkedin.com**) says, it's much more about 'powering your career' and helping you 'discover new connections when you're looking for a job or new business opportunity'. XING (**www.xing.com**) claims to 'find deals, employees, colleagues and jobs', while Viadeo (**www.viadeo.com**) says it's the ideal place to 'exchange information in professional forums' and 'set up appointments and organise events'. Big claims: do they have substance?

DEGREES OF SEPARATION

At first glance, LinkedIn seems much like any other social networking site. There's a customisable profile page to tell the world who you are. You're able to build a list of business contacts and send them messages. And there are groups you can join to ask for advice or discuss issues. (Serious and sober ones, that is.)

But then, over time, you begin to notice the benefits. At the simplest level, the site acts as a handy way to find and keep in touch with ex-colleagues and other old business contacts. If they've moved company or you've lost their business card, it's no problem at all — just check their LinkedIn profile for the up-to-date contact information. And, similarly, being on LinkedIn means it's easier for old colleagues to locate you.

Better still is the access business networking sites give you to your colleagues' contacts. If you want a job in a particular company and need a contact, for instance, this can come in particularly handy. Enter the company name into LinkedIn and it will search your colleagues' contacts, then the list of everyone they know, looking for a hit. With luck you'll discover that a friend of yours knows someone who went to school with a director from the company. Ask the contact to arrange an introduction to the director, and in very little time the site's helped you make what may be a very important connection.

Other business networking features typically include a system where you can recommend contacts, much like giving them a reference in real life. If you also build your profile page with care, listing your interests, detailing previous companies and so on, then you'll quickly produce an effective online CV. Add forums, where you can discuss business issues or ask advice from fellow professionals, and you've got what looks like an impressive package.

Evaluating the usefulness of business networking sites is no easy task. Some people say LinkedIn works for them; others say it's been useless. But these successes and failures could be down to the individual, as much as the site.

Net traffic growth certainly looks impressive, with LinkedIn up 323 per cent in the year to July 2007, even outstripping Facebook's 270 per cent growth over the same period. It's all helped LinkedIn achieve a very healthy 14 million members, but that still doesn't tell us how satisfied they are with the service.

Fortunately, LinkedIn itself offers the best clues, in a section where members can ask for advice on using the site and what benefits they can expect. The down-to-earth responses make it clear membership probably isn't going to get you a new job or make stacks of cash.

BIZ SITES

LinkedIn

Your home at LinkedIn is a comprehensive profile page, where you're able to list your current and past employers (this'll help ex-colleagues find you), education, web sites, interests and more. It's straightforward to add colleagues to your contacts list, where you can then write recommendations for them (that is, references saying how good they are at their jobs), and they can do the same thing for you. You're also able to ask questions and help others out on a central message board. The free version of LinkedIn has some annoying limitations, but the basic site is well worth trying, if only because LinkedIn has far more members than anyone else (14 million), and that matters.

.: CONTACT LinkedIn
.: ONLINE www.linkedin.com
.: MARKET Everyone
.: PRICE Free to US$2,000/year

✔ Huge membership base.

.: VERDICT ★★★★☆

✖ Premium accounts are pricey.

BIZ SITES

Ecademy

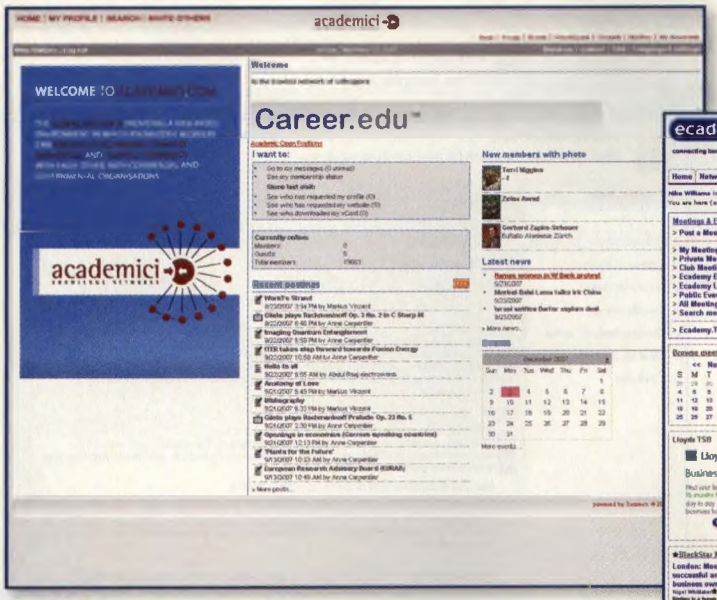
Ecademy is an unusual business networking site where, as creator Thomas Power puts it, "Business comes last and people come first." So although you get a profile page and can list all your current colleagues, Ecademy is more about building new relationships. And it seems to work too: the members chat over blogs and discussion tables, join clubs to talk about possible business opportunities, and even meet up in real life. This is a very different world to LinkedIn, and you won't find many high-flying corporate types here. But if you're more interested in getting practical help in starting your online business rather than wanting to network with potential employers, it could be a much better choice.

.: CONTACT Ecademy
.: ONLINE www.ecademy.com
.: MARKET Everyone
.: PRICE Free to US$100/month

✔ Suits new and small businesses.

.: VERDICT ★★★☆☆

✖ Costly.



Academici (*www.academici.com*) is an interesting networking site for academics and knowledge workers to exchange information.

Ecademy provides a social calendar of real-world events and plenty of online business advice.

Instead it offers more practical benefits: "It's allowed me to get back in touch with long-lost business colleagues", "Most of us simply learn things, here", "It's a good dictionary of acquaintances, but the real communication happens through regular email".

Our informal survey suggests that most LinkedIn members haven't seen their careers transformed after signing up, but still find value in the service. And you could do the same, if you follow some simple rules.

SUCCESSFUL NETWORKING

At the heart of every business networking site is your profile. This is public, so treat it as an online CV, adding your interests, all your past employers, all the details you would include in a job application. But be wary. If you say you were a director at BigSoft five years ago, it only takes a moment for someone to search for others who worked at the company during the same period and ask for a reference. So don't be tempted to falsely 'enhance' your CV.

Next, build up your network by inviting any colleagues with accounts on this site to add you as a contact. There are usually tools that will check your webmail or Outlook address books for members, so this won't take long. Search for old classmates and ex-colleagues too, but do exercise some quality control. Most importantly, once you're set up, don't just sit back and expect things to happen. Change your contact details when necessary, update it with new interests, and regularly search for people you can add as contacts. And do everything you can to be an asset to your network. Post recommendations to other members you trust, join discussion groups, answer questions, be seen as someone who's always willing to offer assistance. This will take some time, but it also ensures that when you need something, there will be hundreds, maybe even thousands, of people who are ready to help.

Mike Williams

BIZ SITES

XING

XING started in Germany, but with help from two Spanish acquisitions it now has a healthy four million members. The site takes an even more social approach to networking than Viadeo – you can include a photo, guestbook, Skype online status and more on your profile. Discussion groups cover all kinds of topics, business-related and otherwise, and there are sections on the site where you can read about events or find help looking for jobs.

Like everyone else, XING restricts its free account in a variety of ways, in particular stopping you search for people by company. The only significant problem with XING networking right now is the lack of Australian members.

CONTACT	XING
ONLINE	www.xing.com
MARKET	Everyone
PRICE	Free or 5,95 Euro/month

✔ Strong international links; Skype.

VERDICT ★★★☆☆

✖ Free accounts are quite limited.

BIZ SITES

Viadeo

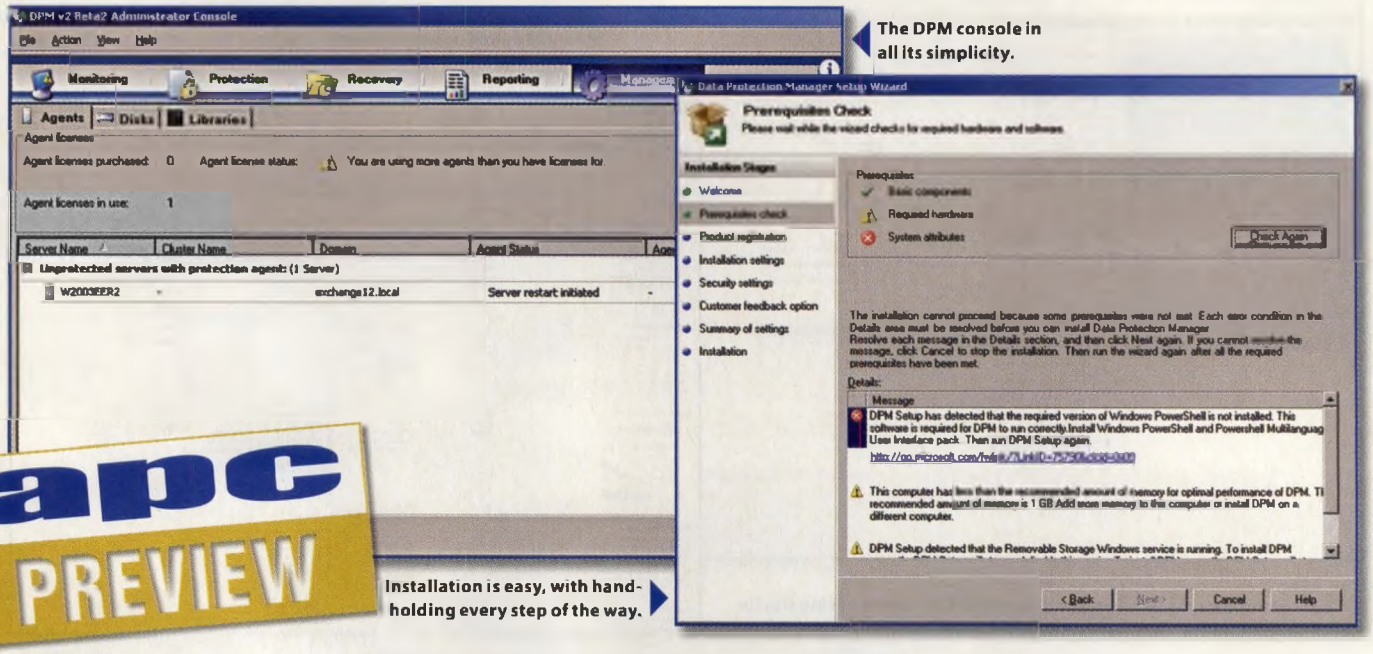
LinkedIn has a reputation for being formal and, well, a little on the dull side, but Viadeo shows business networking doesn't have to be that way. The site actually lets users put photos on their profile pages, for instance (whatever next?), and there's plenty of opportunity to chat about business, jobs and financing, but Viadeo has discussion boards covering movies, music, travel, and all the other topics you would expect, too. There's a CV-like profile, and you can invite contacts to join your network. The free version has restrictions, but at least overcoming these is relatively cheap at under $11 a month. Viadeo is worth a look, especially if you need to find contacts in France, where it's strongest.

CONTACT	Viadeo
ONLINE	www.viadeo.com
MARKET	Everyone
PRICE	Free to 79,80 Euro/year

✔ Powerful search tools.

VERDICT ★★★½☆

✖ A little less serious.



The DPM console in all its simplicity.

Installation is easy, with hand-holding every step of the way.

Data Protection Manager 2007

Microsoft's Data Protection Manager 2007 may be the best product for backing up Microsoft workloads, as *Paul Schnackenburg* reports.

Data protection is changing. Rather than using clunky, slow tapes and backing up once a night, IT admins can use cheap hard disks and back up far more often. Timed with this change was Microsoft's first foray into data backup when it released Data Protection Manager 2006. But since it was limited to backing up file servers only, the market uptake was slow.

System Center Data Protection Manager 2007 (DPM) is a totally different beast. This product is the best way to backup Microsoft workloads because, as with all Microsoft software, it's designed to work with Microsoft products. DPM now supports Exchange, SQL Server, SharePoint and Virtual Server as well as fileservers. It also includes tape support for comprehensive protection, along with frequent protection points and protection of Windows XP SP2 and Vista client computers.

For disaster recovery, there's a new bare-metal restore capability. There's also enhanced tools for branch offices along with end user self-service recovery. DPM also provides Powershell support for command line jockeys. The console for managing DPM is a masterpiece of simplicity clearly laid out with wizards for every complex step, making it very easy to use.

PROTECT YOUR (MICROSOFT) CROWN JEWELS

DPM runs on Windows Server 2003 with SP2, or Windows Storage Server 2003 SP2. Minimum system requirements are a 1GHz CPU, 2GB of RAM and 4GB of disk space. Recommended specs are a 2.33GHz quad-core CPU, 4GB of RAM and 4GB disk space (excluding backup storage). DPM isn't 64-bit but will run on an x64 OS; it can also protect x64 servers. Installation is easy, with a comprehensive prerequisite checker.

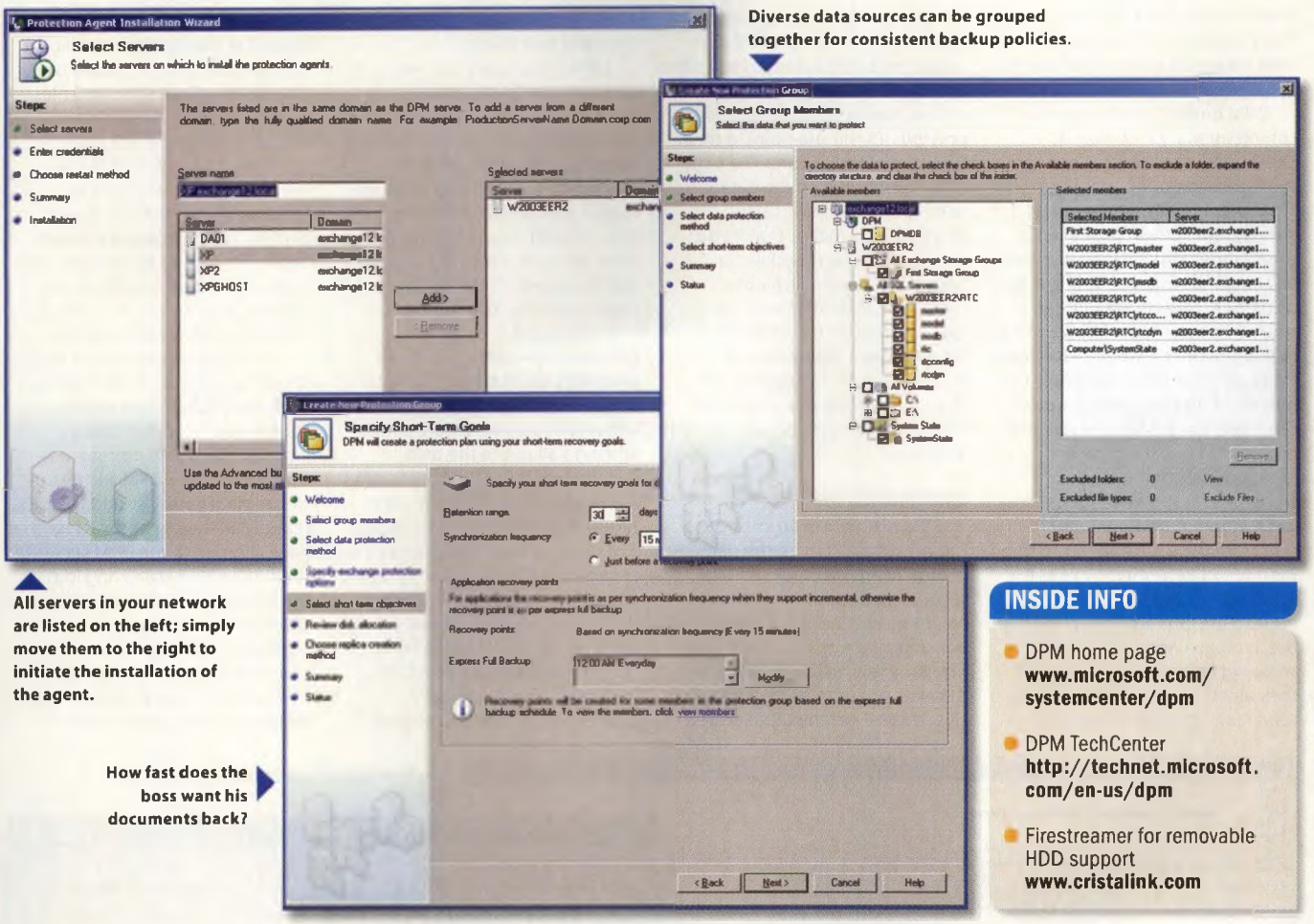
DPM can protect Exchange 2003 SP2 and 2007, SQL Server 2000 SP4 and 2005 SP1 and SharePoint 3.0 and SharePoint Server 2007 as well as Windows 2003 and 2008 fileservers. The Windows 2000 fileserver is missing because it doesn't support VSS (Microsoft Virtual SourceSafe).

Microsoft Virtual Server 2005 R2 SP1 can also be protected by DPM — not only the host OS, but the individual virtual machines can also be backed up just like physical servers if they're running Windows Server 2003 SP1 or later. Earlier Windows OSs and Linux guests will experience a 2-3 minute pause during the nightly full synchronisation.

Each protected server needs the DPM agent installed; this can be pushed out and automatically installed from the DPM server. It can also be incorporated in image-based deployments, as well as be pushed out by software distribution solutions.

WHERE DO YOU WANT TO PUT YOUR DATA TODAY?

The beauty of disk-based backups can't be overstated. There's no need to find tapes in an archive, rewind to the right spot on the tape, or spend a long time restoring large amounts of data. Disk backup is fast, files are found



Diverse data sources can be grouped together for consistent backup policies.

All servers in your network are listed on the left; simply move them to the right to initiate the installation of the agent.

How fast does the boss want his documents back?

INSIDE INFO

- DPM home page **www.microsoft.com/systemcenter/dpm**
- DPM TechCenter **http://technet.microsoft.com/en-us/dpm**
- Firestreamer for removable HDD support **www.cristalink.com**

instantly, and, most importantly, SATA drives are now large, fast and reliable enough to be a better choice than tape storage.

Where DPM shines is in the way potential data sources are presented for backup. For instance, Exchange storage groups are presented and SharePoint farms are shown, making it very easy to select what to backup. DPM will then figure out which database files, log files and configuration data to backup. This is where it shows that this is a Microsoft product, specifically designed for Microsoft server loads.

This also means that protected data can be grouped based on business needs; for instance, the HR department's SQL database, Exchange mailboxes and SharePoint library can all be protected as one unit.

Backup data on the DPM server can be stored on local disks or in a SAN. Alternatively, DPM will run on Windows Storage Server 2003, which is an appliance optimised for disk storage, running a custom version of Windows Server.

WITH TAPE SUPPORT NOW BUILT INTO DPM, THE ALTERNATIVES FOR STORING BACKUP DATA OPEN UP

With DPM tape support comes the risk of those same tapes ending up in the wrong hands; DPM offers full encryption of all media.

Out of the box DPM doesn't support removable hard disks, but a company called Cristalink offers an add-on product called Firestreamer (US$250) for USB and FireWire external HDDs.

D2D, D2T OR D2D2T?

With tape support now built into DPM, the alternatives for storing backup data open up. To use DPM as a traditional backup tool, Disk to Tape (D2T) is the option selected.

If long-term archiving isn't a big requirement, or a third party tape backup solution protects the DPM server, Disk to Disk (D2D) is used. The complete serve, however, is Disk to Disk to Tape (D2D2T), where most restores due to lost files/mailboxes/SharePoint lists are performed directly from disk, but long-term archiving for compliance is stored on tape. This also has the advantage of shifting the system impact of tape backup from the source to the DPM server. No more trying to fit into eight-hour backup windows with increasing amounts of data to protect.

How much storage you need varies with the amount of data, its rate of change and how often you back up, as well as how many past recovery points you need. A rule of thumb is 2-3 times the amount of data you want to protect; for more accurate estimates, there will be a calculator available for download when DPM is released.

HOW OFTEN?

Continuous Data Protection (CDP) is a buzzword for the idea of copying data written to servers in real time to another location for true, full-time backup protection. These products are often very costly and the process of restoration isn't always easy, as they mightn't 'understand' the data that's being protected.

DPM 2006 offered hourly backups as the shortest increment and DPM 2007 increases this to

every 15 minutes if you wish. DPM also increases the number of shadow copies on the DPM server to 512, from 63 in DPM 2006.

DPM protects data using two complementary techniques: Express Full and transaction log synchronisation.

Express Full synchronises all data (hence Full), but only sends the changed disk blocks since the last one, thus Express. This process, by default, takes place nightly every 24 hours. At a minimum it has to happen once a week — the most frequent it can be done is every 30 minutes. It uses Volume Shadow Copy Services (VSS) to ensure the data is in a consistent state.

For transaction-based workloads (SQL, Exchange), there's another process where the logs are sent from the source server to the DPM server as frequently as every 15 minutes if you want. The transaction logs aren't applied to the database, as they are in log shipping technologies, because their aim is *availability*; if the first server fails, the other one has current data and can start servicing clients after a failover. DPM is a *protection* solution and so will store the logs as separate files. This means that you can go back to any previous 15-minute point in time. After the nightly Express Full, the difference between the database yesterday and today is also retained. This means that if you select a 24-hour schedule for Express Fulls and 15-minute synchronisation of transaction logs, the maximum amount of retention time possible is 96 recovery points per day for 512 days, or almost a year and a half. This is without ever having to reach for a tape!

BRANCHING OUT

The big problem in an enterprise today isn't backing up the data centre. There you have physical security and control over the environment. Branch offices, however, are a different story: often there is no local IT staff, but data still needs to be backed up. How do you get the tapes stored in a secure location and reliably changed every day?

DPM is designed for exactly this scenario, with backups sent over the WAN to a central DPM server for safekeeping. The initial replication can either be scheduled for a weekend or sent using removable media. Bandwidth throttling is also easy to configure, with options for work and non-work hours, along with compression of the data in flight, as well as encryption.

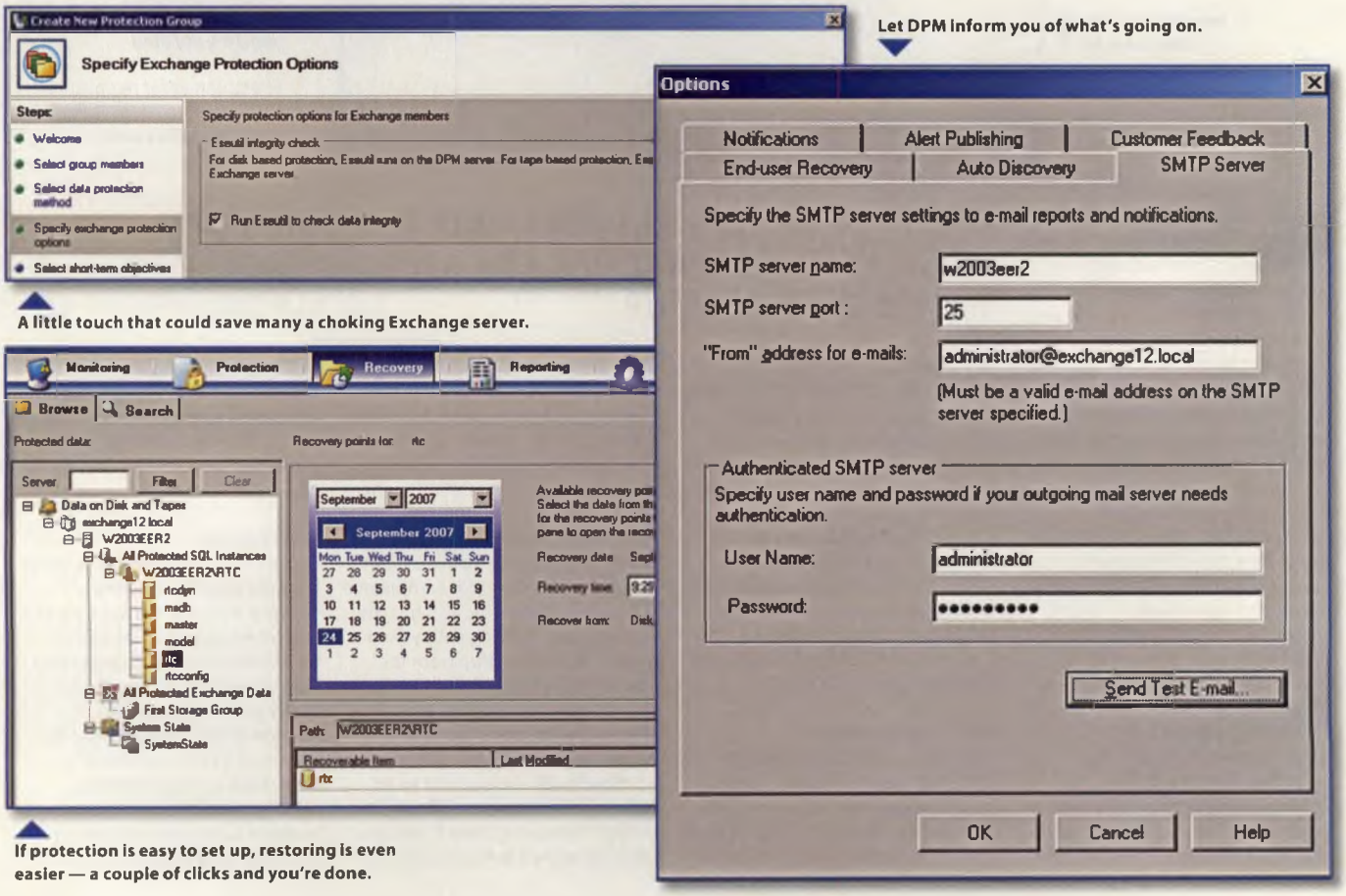
RECOVERY — THE MOMENT OF TRUTH

Backup is just insurance; the time when you need to restore data is when it's all put to the test. Fortunately, it's really easy to do; dates with recoverable data are highlighted in bold in a calendar, just click the date that you need to recover data from. Select the data source (file/SQL/Exchange) and then the particular file, database or mailbox that you'd like to restore.

The other beauty with DPM understanding Microsoft's applications is that you protect farms in SharePoint and storage groups in Exchange, but you can *restore* individual mailboxes or databases in Exchange, and files/sites/databases in SharePoint. This gives a flexibility which really makes restores easy. DPM is also aware of clustered setups in Exchange, as well as SQL Server clusters and mirrored databases. DPM isn't only aware, but you can control whether to back up the passive or active node, as well as how DPM behaves in a failover.

In a disaster-recovery scenario, there's another useful feature for Exchange/SQL and SharePoint called 'latest'. If databases are stored on separate disks to transaction logs, DPM will restore the original database and then reapply all the transaction logs that have shipped to the DPM server. It then replays any surviving logs on the source server, bringing the database up to the minute automatically, without a database expert having to be involved.

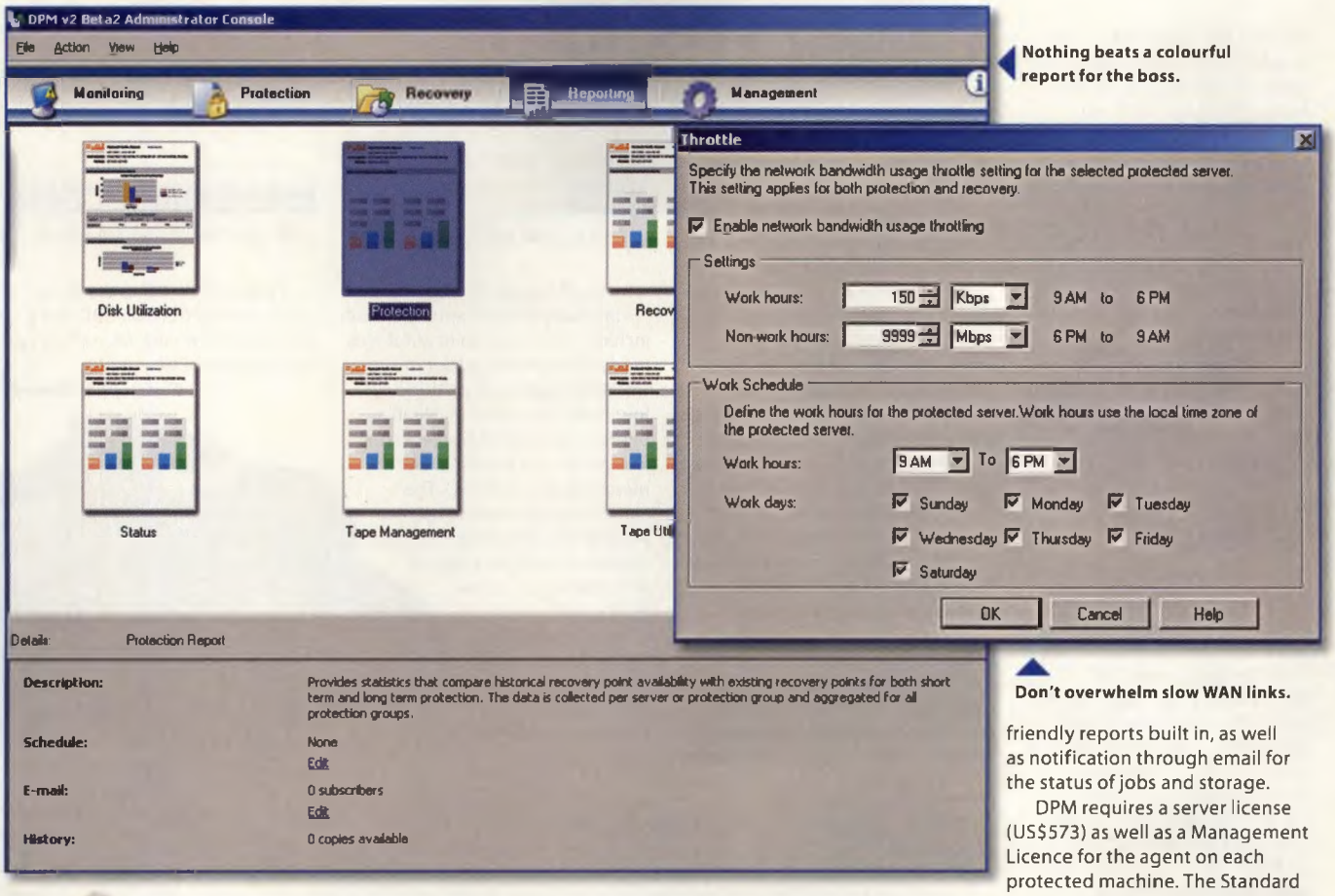
For that belt-and-suspenders feeling, a DPM server can be



Let DPM inform you of what's going on.

A little touch that could save many a choking Exchange server.

If protection is easy to set up, restoring is even easier — a couple of clicks and you're done.


DPM v2 Beta2 Administrator Console
File Action View Help
Monitoring
Protection
Recovery
Reporting
Management
Disk Utilization
Protection
Status
Tape Management
Details: Protection Report
Description:
Provides statistics that compare historical recovery point availability with existing recovery points for both short term and long term protection. The data is collected per server or protection group and aggregated for all protection groups.
Schedule:
None
Edit
E-mail:
0 subscribers
Edit
History:
0 copies available
Throttle
Specify the network bandwidth usage throttle setting for the selected protected server. This setting applies for both protection and recovery.
Enable network bandwidth usage throttling
Settings
Work hours: 150 Kbps 9 AM to 6 PM
Non-work hours: 9999 Mbps 6 PM to 9 AM
Work Schedule
Define the work hours for the protected server. Work hours use the local time zone of the protected server.
Work hours: 9 AM To 6 PM
Work days: Sunday Monday Tuesday Wednesday Thursday Friday Saturday
OK Cancel Help

Nothing beats a colourful report for the boss.

Don't overwhelm slow WAN links.

> ANOTHER HANDY FEATURE IS THE ABILITY TO RESTORE TO TAPE, WHICH MIGHT SEEM LIKE A CONTRADICTION

configured to protect another DPM server, perhaps in another location for disaster protection. Data is still retained in its native format, so transaction log files are still there, along with database files.

Another handy feature is the ability to *restore* to tape, which might seem like a contradiction. Imagine, however, the accounting department closing their books on a particular day and time for the year, or a project team completing work at a particular deadline. This data can be captured and restored to tape for long-term archival.

SQL data can be restored to the same database, to another instance on the same server, to file, or to another SQL server. A full search interface is on offer for finding particular files or data to restore.

Many Windows Server networks use the Previous Version feature, where end users can go to the properties of a file share and find an older, deleted or overwritten version of a file or folder and restore it themselves. DPM takes this a step further by allowing end user recovery and pointing the Previous Versions interface to the DPM backups, instead of to the original server. The main benefit is to let end users do these tasks themselves without involving administrators or the help desk.

In case of complete system failures, DPM can also perform a bare-metal restore using the System Recovery Tool (SRT).

A WELL-ROUNDED PACKAGE

DPM offers Powershell support for command line control; there are already many sample scripts available for download. DPM requires Active Directory and will monitor for the addition of new servers so that if someone spins up a new server there will be a notification, then the agent can be deployed and the server protected. In a multi-domain forest, DPM will protect servers in any domain, as long as there's a two-way trust between the DPM domain and the protected servers.

For Exchange, DPM offers another compelling feature. The final stage of a backup is to run a utility called Eseutil to ensure the database is consistent before truncating the logfiles. This can be a system-intensive process on a big mailbox server — DPM can offload this process so that it runs on the DPM server instead. There are comprehensive, management-friendly reports built in, as well as notification through email for the status of jobs and storage.

DPM requires a server license (US$573) as well as a Management Licence for the agent on each protected machine. The Standard agent licence (US$155) only covers file servers, whereas the Enterprise agent (US$426) protects Exchange, SQL etc.

The System Center CAL (which incorporates other System Center line-ups such as Configuration Manager and Operations Manager) can also serve as a CAL for DPM.

DPM's only downfall is the lack of small-business support: there's no way to back up several, separate SBS servers, for instance, as a two-way domain trust has to exist between the DPM server and each protected server.

Apart from the lack of SBS support, DPM is simply the best way to back up any of the major Microsoft workloads today in medium-to-large networks. The addition of tape support makes DPM a comprehensive solution. In a heterogeneous environment, DPM will fit neatly in, taking care of all the Microsoft server applications, and the DPM server can, in turn, be protected by an enterprise backup solution.

HDTV IN SPACE!

A Canon HD camcorder has been sent into space for vacuum testing. The Canon XH G1 HD travelled on the latest space shuttle Discovery mission to the International space station where HDTV testing was carried out. The test was a joint venture between Japan Aerospace Exploration Agency (JAXA) and NASA.

www.nasa.gov

TIGHT SPACES

So you want wireless in the back room of the shop, but there's no power point for the base station? ProCurve has designed it's latest access point with Power over Ethernet as well as a basic web interface, for businesses without IT staff. The Wireless Access Point 10ag is suitable for small business networks and conference rooms. Price: $277 ex GST.

www.procurve.com.au

SUITING UP

Griffith University is claiming a first for postgraduate IT students – a single degree combining the MBA and Master's of IT, called the Master's of Enterprise Architecture. IT students get HR management and business comms study, while the business graduates are get a dose of geek, in the form of "practical software", "hardware architecture" amongst other things.

www.griffith.edu.au/

Griffith UNIVERSITY

Canon EOS 40D

Canon unveils its latest offering to the DSLR market

CONTACT	Canon
ONLINE	www.canon.com.au
MARKET	Everyone
PRICE	$2,599 for enthusiat kit

✔ Good image quality. Easy to use.

VERDICT ★★★½☆

✖ Slow focusing. Slightly overpriced.

The Canon EOS 40D is a vast improvement over its predecessor, the EOS 30D. The fiddly menu system and odd-looking body have been overhauled, and this new model has a larger LCD (3in), better positioned controls and a superior grip. Despite the 40D body being the same size (14.5 x 10.8 x 7.3 WDH) and weight (740g without batteries) as the 30D, the updated model feels far more comfortable to hold.

The camera's external ports, slots and connection points are fitted with dust- and weather-proofing plugs so you can safely use it in most conditions without fear of damage. The 40D also includes Canon's standard Integrated Cleaning System to keep the camera's body and CMOS sensor free from dust.

Another improvement is the addition of Live View Mode, which allows users to autofocus through the LCD rather than the viewfinder — a handy feature for beginners.

Internally the 40D enhancements include: three nine-point autofocus modes (Single-shot, AI Servo tracking autofocus and AI Focus), four metering modes (evaluative, partial metering, 3.8 per cent spot and centre-weighted average metering), and Auto ISO. The camera's range of white balance settings includes bracketing and custom corrections along all four colour axes; colour temperature; and manual mode. With a top shutter speed of 1/8,000 and a flash sync speed of 1/250, the 40D should cover all your needs.

Canon fans will find the 40D a great upgrade from the 30D, but it still doesn't offer the value of the far cheaper Nikon D80.

Christopher Zammit

Pentax K10D

Good, cheap, not too simple... what's not to like?

CONTACT	Pentax
ONLINE	www.pentax.com.au
MARKET	Performance enthusiast
PRICE	$1,199 with 18-55 lens kit.

✔ Cheap; mid-range DSLR.

VERDICT ★★★½☆

✖ Slow auto-focus in poor light.

These days Pentax seems to keep coming up with good, well-built DSLRs for under $1,000. The K10D takes what the K100D achieved a step further with features such as a 10.2 megapixel CCD, Shake Reduction technology, a dust and weather-proof body, interchangeable focusing screens and 11-point autofocus — all of which should help make this model a big seller.

Like the K100D, the K10D's body feels solid and well-built. We particularly love the raised thumb grip that gives the user the feeling of an extra-secure hold. The only unusual thing about the body is the poor placement of the main control wheel, which may get in the way of some people's noses while taking shots.

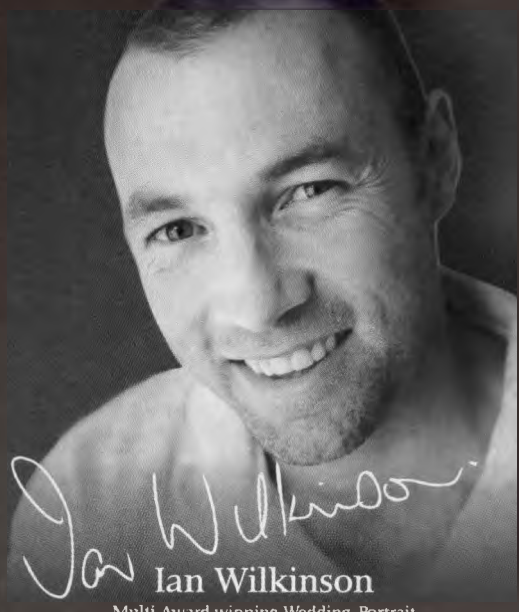
Although this is not a beginners' camera, the K10D will suit those who have previously owned and used a DSLR. It lacks the numerous scene select modes that beginners find so friendly, but with a bit of practice anyone can use this camera.

The picture quality was pretty impressive for the price tag — the K10D captures a great range of colours with good saturation. The main drawback to its performance is the sluggish autofocus in anything less than bright light. Most users wouldn't even notice this until trying to take a picture in a hurry, and then missing the shot.

Pentax may be able to give Canon and Nikon a shock in the semi-professional DSLR market with this good quality, low-priced product. If this is your first time on a DSLR we recommend you go for the Pentax K100D, which is simpler and better suited to beginners. For those who want a well-priced DSLR with plenty of features, the K10D is for you.

Christopher Zammit

"My trade secret revealed. Corel Paint Shop Pro delivers powerful, professional results - fast... and it's simple enough for anyone to use."



Ian Wilkinson
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www.ianwilkinson.com.au

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Officeworks The works
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harristechnology
Harvey Norman
...and all good software resellers

Sound advice

***Nick Race* looks at the best gear for great PC sound.**

A study by IBM completed recently shows that nearly 45% of people surveyed spent more than four hours using their PC at home a day. 60% of respondents spent 1-4 hours a day on the internet. With PCs becoming more central to our entertainment, it's time to give our PCs a boost in the audio department. It's been a given for a long time that you can enjoy your TV or movie-watching experience even more by bumping up the quality of the audio — it's more immersive and sets the atmosphere much better than a tinny mono speaker from the front of your telly.

Of course, that's driven many to invest in surround sound for their home. It works when watching movies and most often doubles up as the main source of music in a household. More and more people are spending large proportions of their time in front a PC, while using it for entertainment purposes. That means either browsing the web, playing games, listening to music — or unsurprisingly watching TV and movies.

With so much time spent on home PCs as a source of entertainment, not to mention the expense of the music people are paying to download, why persist with the low-cost, low-performance speakers that come in the box when buying a new PC? In the same way that people often don't stick with the sound that comes built in to a television, adding an after-market audio system is really the way to go. Enjoying those $1.69 tracks from iTunes must be hard when you're listening through tinny notebook speakers, or $5 off-the-back-of-the-truck beige speaker specials that came with the PC as a tip-on. If you're going to invest your time and money into music on your PC, you might as well pay a little extra to enjoy it even more.

We've rounded up a swathe of speakers to suit all users. From 2.0 USB pairs that can plug right in to a notebook for some fantastic sound, to full 7.1 systems for the

ultimate in surround sound. For those with others to consider, or really looking for an edge in fast action games, then we've also looked at some headphone/microphone combos. These are the new black for PC gamers, giving clear clues as to who's sneaking up on you, as well as providing a microphone for communicating with team mates. It doesn't hurt that they're great for VoIP as well. Last, and certainly not least, we've grabbed two premium sound cards (remember those?) that add more functionality than your motherboard's usual offering.

WE'VE ROUNDED UP A SWATHE OF SPEAKERS TO SUIT ALL USERS: FROM 2.0 TO FULL 7.1

WHAT ARE THE CHOICES?

PC speakers are grouped according to the number of satellite (side) speakers, plus the subwoofer, or bass speaker. It's easy to tell how many speakers are included in a set by the unofficial but widely adopted numbering system. A 2.1 system will have two satellites (left and right) plus a subwoofer, while a 5.1 system will have five satellite speakers and a subwoofer. Following on, a 2.0 system will have two satellite speakers and no sub. Speaker systems have a maximum of 7.1 — seven satellites: front left and right, middle left and right, rear left and right, a centre speaker plus a sub for a total of eight. Though 7.1 systems will offer you the ultimate in surround sound, often carrying labels known from home entertainment gear like THX and Dolby Surround, they aren't terribly practical when setting them up around a PC.

5.1 systems tend to give the user an easier time. Though you still get the benefits of surround sound, having front and rear left and right speakers, as well as a centre speaker and a sub. The 5.1 systems only cut down on two satellite speakers over the larger setups, but doing away with the side speakers definitely makes it easier to set a space up for the install.

The setup we expect to see most commonly is the 2.1 configuration. Though 2.1 doesn't offer the benefits of true surround, it does contain all of the audio gear to your desk (and beneath it), doing away with the hassles of running cables to rear and side speakers.

2.0 setups are the easiest, with only two speakers to deal with. These are ideal if you need to move your PC (or notebook) around, as there's less cabling to worry about.

SO WHICH ONE?

It all comes down to your usage model as to which kind of speaker setup to go for. We've broken it into three areas: general use, for a bit of everything; gaming, for the ultimate entertainment machine; and movies, where surround sound counts.

GENERAL USE

For everyday surfing, sound used to be an afterthought rather than a must-have, but with the massive uptake of video on the web (think YouTube), sound got a lot more important. Let's also not forget music on your PC. For those running an MP3 collection, either

WITH HOURS SPENT IN FRONT OF THE KEYBOARD, PUTTING ON SOME OF YOUR FAVOURITE TUNES IS A MUST

from your CDs, or bought through an MP3 service like iTunes, BigPond or mp3.com.au, it's a fair case to say that listening to that music is quite important. With hours spent in front of the keyboard, either working or playing, then putting on some of your favourite tunes is a must.

For general usage, web browsing, video and music we recommend 2.1 systems like the Creative I-Truige L3800's or the JBL systems reviewed here. The discrete (as in separate — none could be accused of being small and retiring) subwoofers really add a level of depth to music that the 2.0 systems struggle to include. There are exceptions: both the Logitech Z-10s and the Bose MusicMonitors do a great job of filling in the gaps from the larger speakers.

GAMING

Audio for gamers is a very touchy subject. There are factions who claim a surround sound system is the only way to fly, while others insist on headphones being the answer to their twitchy impulses. There are, of course, advantages and disadvantages to each.

Surround sound systems like the 5.1 kits reviewed here can offer levels of immersion in games that a 2.1 system can't. If the designers have included surround sound in their games, then the atmosphere from hearing baddies trying to sneak up on you with full directional audio can be amazing. If it's not in the game, and it is true of most of them, then the 5.1s spread the stereo sound around, still giving a vivid sound stage. Of course, moving a 5.1 system is a giant hassle, and playing at low sound volumes isn't really viable.

Headphones specifically tailored to gamers is an up and coming market. These tend to be either hefty (and expensive) or cheap and fragile, but they all come with a microphone for in-game communication. Headphones have the advantage of not disturbing anyone around you, and FPS afficionados claim the extra sensitivity of having the speakers right next to your ears can reduce confusion as to where the sound is coming from and give you a slight edge in an otherwise tight spot. Downsides mean you can't share your music with others in the same room, and some do get uncomfortable after long periods at the keyboard.

MOVIES

Here's where PC audio has really jumped to new heights. Movie buffs will want a 5.1 or 7.1 system for that fully immersive surround sound, matched with a big sub for booming bass. These multi-speaker setups tend to be pretty expensive, so it's an investment if you're serious about matching that big screen and Blu-ray drive with something that will really shine. Downsides mean you'll be running multiple cables to speakers that might not have a logical place to sit. You really do need a dedicated space for this, as most people don't tend to put aside that much room for a PC in their homes.

BUT WHAT ABOUT THE SOURCE?

It's been said that the sound card market is dying — and not slowly. That may be the case, but this writer still believes it's worth the extra money to include a discrete sound card in a PC. The (hopefully) shielded card reduces EMI interference from the motherboard, getting rid of some noticeable hum, adds oodles of connectors that your motherboard manufacturer has left off and takes some of the load off your poorly stressed CPU, freeing more for games, or whatever your poison is. We took a look at two cards for this roundup, each supporting 7.1 audio, with varying amounts of extras. If you're serious about making your PC sound good, then it's worth spending that little bit extra. apc

2.0 STEREO

Logitech Z-10

- CONTACT Logitech
- ONLINE www.logitech.com
- MARKET Everyone
- PRICE $299

✔ On-speaker music controls and LCD.

VERDICT ★★★★☆

✖ Some cabling issues.

This hefty 2.0 system is designed for a minimalist desktop. The sound is very good considering the lack of subwoofer, with a decent response and crisp, clear, high notes. The system allows control of your media player through a touch-sensitive interface on the front. It works with Windows Media Player, iTunes or Musicmatch Jukebox. Control is via a USB port, to make sure it's available. We have a gripe with the length of the supplied USB cable: it couldn't reach from a PC on the floor to the speaker on the desk. LCD display for song titles and time remaining was a nice touch, and the quality of the playback was excellent. It lacks punch with gaming and DVDs, however, due to the lack of bass unit.

Bose Computer MusicMonitor

This little set of aluminium stereo speakers from Bose really impressed. As a 2.0 system, Bose have done some speaker engineering hoodoo to create an "internal opposing passive radiator system", which replaces the typical port in a larger speaker, but still manages to move large amounts of air for good bass response. In a blind test, you wouldn't know the difference. The Bose speakers are small but offer a good range, and offer an excellent compromise if you're short on space, move your PC or notebook around or just want something simple. The bundled remote control is a nice idea, but has very limited range.

2.0 STEREO

- CONTACT Bose
- ONLINE www.bose.com.au
- MARKET Everyone
- PRICE $499

✔ Great sound from a 2.0 setup.

VERDICT ★★★★☆

✖ Remote is a bit dodgy.

2.0 STEREO

- CONTACT Altec Lansing
- ONLINE www.alteclansing.com.au
- MARKET Everyone
- PRICE $39

✔ Aux input on front of speakers.

VERDICT ★★★☆☆

✖ Not going to blow your socks off.

Altec Lansing BXR1120

This little 2.0 system from Altec Lansing fills a niche. Unassuming, decent-quality sound at a good price point. These little speakers provide a basic level of sound for music and gaming, but you'd look toward something more accomplished, like the Bose speakers or a 2.1 system if you really want to feel the music. This kit is bundled with a basic 'dock' for MP3 players, which is just moulded plastic. It does, however, provide a second input on the front of one of the speakers, for plugging in your MP3 player. It's a little thing, but a really good idea.

Creative I-Trigue L3800

The I-Truige L3800 from Creative is a 2.1 speaker system. The bass unit is quite a bit larger than the other 2.1 systems on test, and the extra power and response from the unit is evident. The bass response is quite good, with an adjustable level on a desktop volume controller which also includes headphone and mic ports for easy access. The mid-range is a little muddy, but the satellites do a decent job overall. They're nice-looking satellites, though they may not suit everyone's taste. Interestingly, there's two additional left and right speaker outputs, so expanding to 4.1 might not be out of the question.

2.1 STEREO

- CONTACT Creative
- ONLINE au.creative.com
- MARKET Everyone
- PRICE $149.95

✔ Good bass; good overall sound.

VERDICT ★★★★☆

✖ Very directional satellites.

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2.1 STEREO

Genius SW-V2.1 1500

This 2.1 setup from the European company Genius includes a cabled control unit with the bass, volume and headphone passthrough. This takes up a bit more room on the desk, but the convenience of having all your adjustment options at hand more than makes up for it. Sound from the 1500 is good to above average, but not a real stunner. It can handle decently loud volumes and sounds good in both games and playing music, though perhaps a bit muddy in the mid-range. The quality of the cabled controller is questionable, so the ultra-low price tag shows.

- CONTACT Altech
- ONLINE www.altech.com.au
- MARKET Everyone
- PRICE $77

✔ Separate control unit; good sound.

VERDICT ★★★☆☆

✖ Lacks punch; construction.

JBL Spot

The Spot is a 2.1 sound system consisting of a domed bass unit and two smaller domed satellites. The design is basic, but the colour and design of the speakers can be changed with aftermarket 'shells'. Pleasantly surprised by the sound of this system. The bass puts out more grunt than it looks capable of, and the tiny satellites do good work also. The Spot has a much better sound than the Creature II system. We had some trouble with a ground loop (or fault in the unit somewhere) that caused a bad hum. Cleaning the units power with a UPS didn't help. Music sounded excellent on this system. The bass is adjustable, though difficult on the ground, while the RHS satellite has touch-sensitive volume controls. We'd recommend this one.

2.1 STEREO

- CONTACT Conexus
- ONLINE www.conexus.com.au
- MARKET Everyone
- PRICE $229.95

✔ Great bass; good sound overall.

VERDICT ★★★★☆

✖ Needs headphone/mic passthrough.

2.1 STEREO

JBL Spyro

The Spyro is certainly one of the most bizarre-looking speaker systems we've ever seen. This magenta-coloured 2.1 system uses the same bass speaker as the JBL Spot, with which we are quite impressed. Thankfully, the Spyro keeps to the same standard. The satellites set this apart, using a strange flower-like design. The satellite quality may be a little less than the Spot, due to the design concession. One gripe is the way the satellites sit in a tripod fashion, the heavy cloth-covered cables tended to easily flip and move the satellites if we were messing with cables around the desk. Minor, but annoying.

- CONTACT Conexus
- ONLINE www.conexus.com.au
- MARKET Everyone
- PRICE $299

✔ Same great bass as the Spot.

VERDICT ★★★½☆

✖ Satellites tended to flip over.

TDK Tremor Xa-40

This is a single unit 'cube' system, using two flat-panel speakers facing left/right and a bass shooting down. Unfortunately, you get the worst of both worlds. Sound is directionless, and stereo doesn't sound separated. The bass sounds muffled and gutless, and it's not adjustable. The Tremor's power plug likes to fall out of the wall, and can't be used in power points next to the floor — pass! Love the industrial design, though: plain but neat. The unit struggles with high volume, so its usefulness as a portable speaker system, let's say, on a balcony or patio, is limited there also. Disappointing.

2.1 STEREO

- CONTACT Altech
- ONLINE www.altech.com.au
- MARKET Everyone
- PRICE $59

✔ All-in-one unit; portable-ish.

VERDICT ★★☆☆☆

✖ Awful sound; poor powerpack.

2.1 STEREO

harman/kardon SoundSticks II

The original SoundSticks 2.1 system had a great run, and is known as one of the better 2.1 systems when people started to care about audio quality on PCs. The SoundSticks II try to carry on that legacy. They resemble a bizarre Tupperware experiment, especially the sub, so reserve your own judgement on the design. Thankfully, the performance isn't open to as much debate. The SoundSticks II provide a great music experience, with the satellites offering great fidelity in mid- and high-ranges, and the bass providing just enough grunt to get along. Overall great, unless you're a huge techno fan.

- CONTACT Conexus
- ONLINE www.conexus.com.au
- MARKET Everyone
- PRICE $299.95

✔ Sounds good; interesting design.

VERDICT ★★★☆☆

✖ Bass just scrapes through.

Cyber Acoustics CA-3550

Cyber Acoustics is a brand big in the US, but still to make an impact here in Australia. This is one of the first CA products to hit our shores, courtesy of Audion Innovision. The CA-3550 set is a 2.1 speaker setup. There's bass and volume controls in one of the satellites. The satellites are quite thin, almost flat-panel, and very light, which was a tad annoying when instead of changing the volume we ended up pushing the speaker around the desk with our fingertip. The sound was good, but nothing mind-blowing, with good bass response and a fair to middling performance from the satellites.

2.1 STEREO

- CONTACT Audion Innovision
- ONLINE www.audion-mm.com
- MARKET Everyone
- PRICE $99.95

✔ Good strong bass; decent price.

VERDICT ★★★☆☆

✖ Lightweight satellites.

2.1 STEREO

JBL Creature II

The Creature II's are one of the strangest-looking speakers out there. This 2.1 system is all style and no sense. The bass is either wimpy or muddy; we struggled to find a middle ground. Level adjustments are on the bass unit, which is useful except when it's under the desk (ie. most of the time). Treble control doesn't do a great deal, but treble in the mix is quite strong anyway. No headphone passthrough or useful accessories. There's a touch-sensitive volume control on the right satellite. This system is stylish and interesting, but more because of looks than performance.

- CONTACT Conexus
- ONLINE www.conexus.com.au
- MARKET Everyone
- PRICE $199.95

✔ Strong design elements.

VERDICT ★★★☆☆

✖ Didn't blow us away.

Altec Lansing BXR1121

The BXR1121 system from Altec Lansing uses the same satellites as the BX1120 kit; however, it adds a 6W sub in to the mix. This really does pump up the overall listening experience of these speakers and rounds out the sound nicely. The same qualms as the BXR1120 still stand — they're far from stylish and very basic. Conversely, the same praises apply: the aux connector on the front of the unit is handy, but think more 'plug' than 'dock' when looking at the box.

2.1 STEREO

- CONTACT Altec Lansing
- ONLINE www.alteclansing.com.au
- MARKET Everyone
- PRICE $59

✔ Aux Input; better than the BXR1120.

VERDICT ★★★☆☆

✖ Still nothing to write home about.

5.1 SURROUND

Logitech Z-5500 Digital

This kit puts the wow back in PC audio. With a huge thumping bass and surprisingly crisp satellites, the Z-5500 Digital kit really impresses. This 5.1 system offers onboard digital decoding with THX certification. It supports six inputs, from PC digital optical and coax to an aux input on the side of the controller for plugging in an MP3 player. The SoundTouch control centre allows adjustment of each speaker individually, as well as controlling puts, volume etc. There's even a remote control, if you fancy sitting back and taking it all in. This is a tight kit, well-implemented.

- CONTACT Logitech
- ONLINE www.logitech.com
- MARKET Everyone
- PRICE $699.95

✔ Sounds fantastic. Lots of knobs!

VERDICT ★★★★☆

✖ Big, expensive and heavy.

Cyber Acoustics CA-5001

This 5.1 system from Cyber Acoustics lifts the game from the CA-3550's reviewed here. This kit sounds much more balanced with the large bass unit and multiple satellites. The same issues are apparent, however, with cable weight and user interaction pushing the satellites around the desk a bit too easily, but this is a relatively minor gripe — nothing some blu-tack wouldn't fix. The fade control on the satellite with the volume is a bit puzzling, but a headphone-out jack on the side of one of the speakers is quite handy.

5.1 SURROUND

- CONTACT Audion Innovision
- ONLINE www.audion-mm.com
- MARKET Everyone
- PRICE $189.95

✔ Good solid bass.

VERDICT ★★★☆☆

✖ Lightweight satellites.

7.1 SURROUND

Creative GigaWorks S750

This is a huge kit. This 7.1 system is certainly a space hog, so keep that in mind if you've a small room to play in. The S750 includes six satellites, a centre speaker plus the subwoofer, as well as a control pod for adjusting bass, treble, volume with individual controls for front, centre, side and read channels. Pop a DVD in with this set, provided you've got the right (and expensive) codecs for full surround playback, and enjoy the ride. The bass is great, if a bit overdone, while the satellites each do their part for a genuinely enjoyable listening experience.

- CONTACT Creative Labs
- ONLINE au.creative.com
- MARKET Everyone
- PRICE $899.95

✔ Booming bass and good sound.

VERDICT ★★★½☆

✖ So many cables!

Cyber Acoustics AC-850

This headphone offering from Cyber Acoustics was a pleasant surprise. This model includes a gooseneck adjustable microphone, reasonably comfortable ear pads and a decent sense of rugged construction. Though they do look a little cheap and cheerful, the CA AC-850s had good sound, a decent mic and felt good for the price. There's a mic on/off switch on an inline controller, and the USB audio is acceptable. Quite good overall for gaming and VoIP when on the go.

STEREO HEAD PHONES

- CONTACT Audion Innovision
- ONLINE www.audion-mm.com
- MARKET Everyone
- PRICE $69.95

✔ Decent sound; microphone.

VERDICT ★★★★☆

✖ The mic could be a better fit.

STEREO HEAD PHONES

Razer Barracuda HP-1

Razer are well-known for their expensive but high-quality gaming accessories. Mice, keyboards and mousemats are their bread and butter, but this foray into personal audio has been impressive. The Barracuda HP-1 5.1 gaming headphones offer large, around-ear construction, with a hefty, but sturdy microphone. The headphones contain six discrete drivers, for a realistic surround, and in our testing was really quite impressive. They deal with heavy bass well, and sound quality on the mic was good enough to get by. If you're an avid gamer, these are the phones to look at.

- CONTACT Audion innovision
- ONLINE www.audion-mm.com
- MARKET Everyone
- PRICE $239.95

✔ Sound fantastic; solid build.

VERDICT ★★★★☆

✖ Price tag: ouch.

Cosonic CD-610

These headphones from Cosonic offer a completely different experience from the Creative and Plantronics model. This low-cost pair are probably best-suited to those who would use them occasionally, as the sound quality is not up to par with the other headphones tested. As a Skype solution, they would suit just fine. The inline volume control is a nice touch, and the cables are of sufficient length. The mic quality is good, but the headphones themselves leave a lot to be desired. They don't grip the head too tightly, so extended wear isn't a drama.

STEREO HEAD PHONES

- CONTACT Altech
- ONLINE www.altech.com.au
- MARKET Everyone
- PRICE $11

✔ Good mic; reasonably comfortable.

VERDICT ★★½☆☆

✖ Poor headphone quality; flimsy.

STEREO HEAD PHONES

Creative Fatal1ty

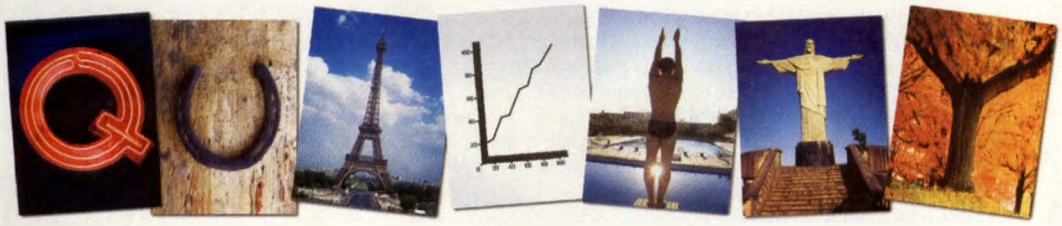
We move on to different territory here. These stereo headphones with detachable mic are a boon for serious gamers or those who don't wish to disturb others around them. The mic is removable: a nice touch, so you can use them out and about with a portable music player without looking like a twit. The phones sound good, with a nice thumpy bass for game playing. Extended wear revealed them to be one of the more comfortable we tried, and the gooseneck-style adjustable mic makes an easy fit for most people. The cables are nice and long, and an inline volume control means no alt-tabbing to adjust volume.

- CONTACT Creative
- ONLINE au.creative.com
- MARKET Everyone
- PRICE $99.95

✔ Comfortable size; removable mic.

VERDICT ★★★½☆

✖ The mic's stalk could be longer.



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Plantronics .Audio 470 USB

The .Audio 470's are definitely of a lower standard than the hefty 770s reviewed here. We're quite unimpressed with the plasticy feel compared to the bigger headphones; they give the impression they wouldn't last long without kid-glove treatment. The audio of these USB-connected headphones with microphone was acceptable considering the price, size and weight. The mic was strong and clear, but unadjustable and on too short a boom for our liking. They do fold up quite small, but the bulk of the extra-long cable and USB dongle bulk things out. Not Plantronic's best effort.

STEREO HEAD PHONES

- CONTACT Plantronics
- ONLINE www.plantronics.com.au
- MARKET Everyone
- PRICE $79

✔ Fold-up design; good microphone.

VERDICT ★★☆☆☆

✖ Feels very flimsy.

STEREO HEAD PHONES

- CONTACT Plantronics
- ONLINE www.plantronics.com.au
- MARKET Everyone
- PRICE $129

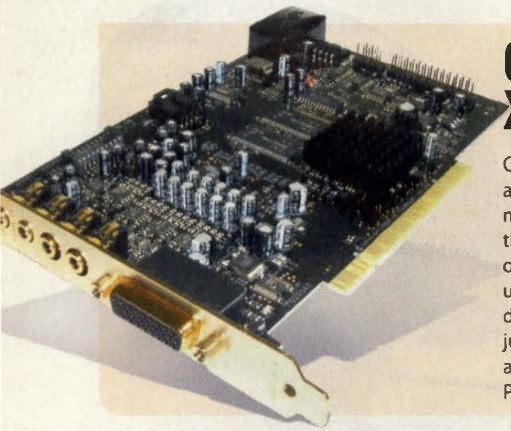
✔ Great sound; great microphone.

VERDICT ★★★★½

✖ Bulky.

Plantronics .Audio 770

These monstrously big 'surround sound' USB headphones from Plantronics are the bees knees of gaming headsets (at a reasonable price). As the flagship of their new .Audio range, the 770s are the pinnacle of Plantronic's long heritage in headphones. The sound out of them is surprisingly full and rich, with a decent volume from a PC source. Their large size makes extended wear quite comfortable. The microphone is placed well but barely adjustable, with great quality thanks to the noise cancellation built in. There's not much to dislike about the 770s, but be warned: they are very bulky and might not be practical to transport.



Creative SoundBlaster X-Fi XtremeGamer Fatal1ty

Creative's sound cards ruled the roost for many years for PC audio. The SoundBlaster brand is synonymous with the age of multimedia computing. The range of high-end X-Fi cards includes this model targeted directly at gamers. It supports 7.1 surround out and stereo SPDIF, but out of the box it's begging for an upgrade. Sold separately are the IO extenders for digital audio, so don't expect to have all the functionality from the get go. If you just need 7.1 for gaming or DVDs, then you've nothing to worry about. Be careful which box you pick up: the X-Fi Fatal1ty, X-Fi Platinum Fatal1ty, X-Fi XtremeGamer Fatal1ty etc. are all different.

PC SOUND CARDS

- CONTACT Creative Labs
- ONLINE au.creative.com
- MARKET Everyone
- PRICE $269

✔ 7.1 in good quality.

VERDICT ★★★☆☆

✖ Basic digital audio out of the box.

PC SOUND CARDS

- CONTACT ASUS
- ONLINE www.asus.com.au
- MARKET Everyone
- PRICE $199

✔ All the bells and whistles.

VERDICT ★★★★½

✖ Price.

ASUS Xonar D2

The Xonar is ASUS's first foray into sound cards, and they've done a great job. The card sounds great, is well-designed (coloured LEDs guide cables in under the desk) and a mean-looking EMI shield round it out. The card also includes a strange D/A A/D audio pass to bypass DRM in music. So unlock those iTunes tracks once and for all. The card supports 7.1, Dolby Digital and DTS, SPDIF input/output in optical and digital, EAX 2.0 and a handy audio level normaliser. There's even PowerDVD with a 5.1 decoder in the box. Overall, a great kit from ASUS.

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HD camcorders are taking over

Anyone buying a camcorder now has to seriously consider the HD format.

Just as high definition is now driving TV sales, HDTVs are starting to accelerate sales of high-definition camcorders. Consumers are discovering there's nothing ghastlier than watching footage shot on their standard-definition DV camcorder on a 1080 HDTV, so the transition to HD camcorders is well on its way. Each of the major vendors now offers HD camcorders, but choosing one is harder than it was in the DV era, when most camcorders used the same screen resolution (standard definition PAL with 576 horizontal scan lines) and capture codec (DV).

Among the HD offerings, the consumer is confronted by a smorgasbord of different screen resolutions (720p and 1080i), capture codecs (HDV, AHCD and proprietary versions of the old MPEG-2), and storage options (mini DV tape, DVD discs, hard disks and solid state media).

So where does one start? Selecting the right resolution is no longer a big decision, as most HD camcorders on sale in Australia capture video at 1080i resolution. The capture codec is more important.

CAPTURE CODECS

There are two main HD codecs: AVCHD and HDV. Some vendors offer one or the other, while Sony and Canon have models of each. Put videos encoded with AVCHD and HDV side-by-side and only video professionals will be able to tell the difference. But the capture codec determines how easily the finished video can be edited, which in turn translates into how powerful your hardware needs to be.

Unlike the DV codec of older standard-definition camcorders, HD capture codecs need to grab and store video far more efficiently, otherwise the sheer amount of data of HD would overwhelm most available on-board camcorder storage.

HD codecs use the interframe compression method (which forms the basis of the familiar MPEG standards). They capture a full frame of video, then record only information that's changed after the first frame until another full (or iframe) is captured after a certain interval. The video editing software and PC have to work hard, because they have to regenerate a full video frame whenever the edit point strikes a change frame in between the full frames .

Avid Australia distributes video editors that handle the codecs, such as Avid and Liquid. Avid's marketing manager, Garrick

Garrick Simeon says HDV will produce a far better picture than AVCHD — it was developed for the prosumer, rather than consumer market.

Simeon, points out some fundamental differences between the two capture codecs:

HDV

This capture codec produces the better picture, since it uses less change frames between the iframes (about 9 vs 24 for AVCHD). "HDV did not originate as a consumer format," says Simeon. "It's really a prosumer format, the step in-between the consumer and professional market. It was originally sold as an independent filmmakers' format. In a performance shootout, HDV will always beat AVCHD because of the way it handles the compression."

Most of the major video-editing programs, including Avid's Liquid Pro, Adobe Premiere, Ulead VideoStudio, Pinnacle Studio 11, Sony Vegas and Apple iMovie handle HDV.

AVCHD

Standing for Advanced Video Coding HD, AVCHD was specifically created as a consumer HD capture codec by Sony and Panasonic. The quality will vary depending on the bit rate chosen, but it's considered to be the equal of HDV when its bit rate is 9Mbit/s and above.

AVCHD is considered to be the more frame-accurate codec for editing, but was hamstrung when first launched because no video editor supported it except for Sony's own Vegas software. Now, its remaining disadvantage, for the time being at least, is that a powerful PC with a dual-core CPU, at least 2GB of RAM, and a fast and large hard disk (at least 7,200rpm) is a prerequisite for editing video encoded with it.

In time, AVCHD is expectd to become the dominant consumer HD codec.

JVC'S PROPRIETARY FORMAT

Not every camcorder manufacturer has chosen HDV or AVCHD. For its Everio range, JVC has gone with its own capture format which encodes at 720p. It's basically the older MPEG-2 in a container called a .mod file, but it encodes with a big data transfer rate of 30Mbit/s. This can be edited by Cyberlink software that comes with the cameras, and many other video editing packages.

WHAT STORAGE?

HD camcorders store video to one of the following storage formats. Each has its strengths.

MINI DV

Since HDV has a similar data rate to DV, it's able to use the same mini DV tapes as used by all DV cameras. All of Sony's and Canon's HDV-based cameras use mini DV (no other HD camera with a different capture codec does). Depending on its capacity, a mini DV tape can fit the same hours of HDV video as DV video.

DISC MEDIA

Several HD camcorders that use the AVCHD format store the video by burning it directly to 8cm DVD discs. These can accommodate up to one hour of AVCHD video at its lowest data rate of 5Mbit/s, or around 30 minutes at the higher rate of 12Mbit/s. Hitachi's DB70 and BD7H camcorders are the only ones in the market to burn directly to Blu-ray, using 8cm Blu-ray discs of either 7.5GB or 15GB (double-sided) capacity. The latter holds up to one hour of highest-quality 1,920 x 1,080i video. The BD7H also comes with a hard disk.

The advantage of discs of course is that, once the shoot is finished, the video is immediately ready to be viewed and distributed.

HARD DRIVES

Hard drive-based HD camcorders can store several hours of HD recordings which can be easily transferred to PC for editing or burning onto discs. The downside of hard drives is that they make for heavier cameras, can fail if dropped, and have higher power consumption leading to shorter battery life. Sony's hard-disk based HD camcorders come with the

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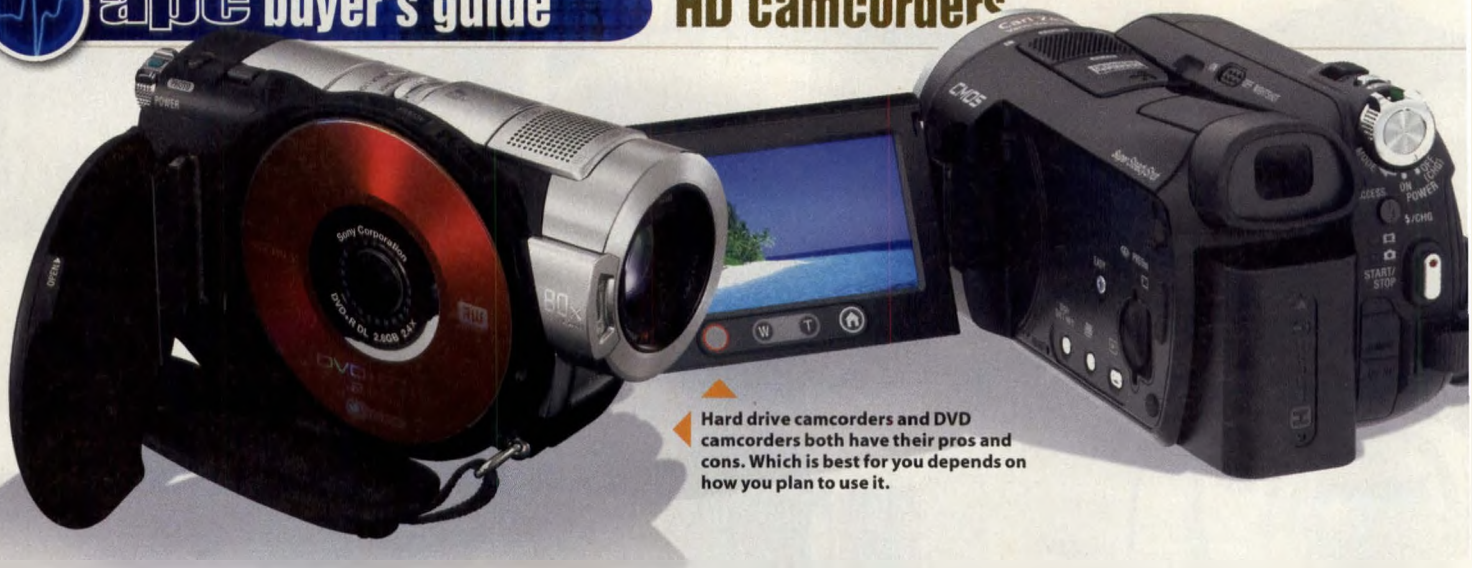

Hard drive camcorders and DVD camcorders both have their pros and cons. Which is best for you depends on how you plan to use it.

biggest drives, the HDRSR7 with 60GB ($2,199) and the HDRSR8 with 100GB ($2,349). JVC's Everio GZ-HD3 also comes with a 60GB disk.

FLASH MEMORY

This storage format, using SDHC/SD cards, is proving to be the bolter. Although flash cards of 4GB or 8GB don't come close to matching the capacity of HDDs, they have many advantages for camcorder makers and users. Panasonic's Marketing Manager for Mobile AV, Alistair Robbins says: "It means you can have a more compact, lighter camera, and the more compact you make it, the easier it is to handle. It's also more robust because it doesn't have moving parts. One of the problems with a hard disk drive is that if you drop the camcorder, you can lose your footage."

Robbins says flash memory cards will keep increasing in capacity. Panasonic's HDC-SD5 camcorder comes with a 4GB card, but a 16GB card is now available, and next year, a 32GB card will arrive. Sanyo's VPC-HD1000 is the other HD camcorder to use flash memory, while the Panasonic SX5 has a combination of flash and HD.

THE HD CAMCORDER USAGE MODELS

I want a reasonably good HD camcorder to shoot family occasions, but I don't want to futz around with video editing.

You can always link your camcorder directly to your HDTV as long as it has HDMI output. However, if you want to also store the video and then watch it without any fuss, get an AVCHD camcorder that burns directly to a disc (Sony's HDRUX5, HDRUX7, or Canon's HR10). Then pop the disc into a Blu-ray player and it's ready for watching, since Blu-ray players recognise the AVCHD format. Alternatively, there's Hitachi's BD70 (or BD7H) camcorders, which burn directly to Blu-ray disc.

I love shooting family occasions and then editing the results into masterpieces for family showings.

An HD camcorder that captures to HDD is best. It will accommodate lots of video for your editing needs and easily transfer it to your PC. Here you'll be working with the AVCHD codec, as most HDD-based camcorders use it. Also, you'll need a video editor that edits video encoded with AVCHD. One is Sony's Vegas (now version 8), while Pinnacle Studio 11, Adobe Premiere and Ulead VideoStudio also handle the format. But you'll need a powerful PC to handle all the processing that's required by the video editing.

I'm a serious amateur film-maker. I am hoping my videos can be shown at film festivals, so I want a high-quality camcorder.

If you have film-making aspirations, get a camcorder that uses the HDV format. Sony has a range of HDV-based camcorders at similar prices to its AVCHD models, starting with the $1,799 HDRHC5. But in the higher price brackets of Sony's camcorder range, HDV dominates. Sony's HDRFX7 ($5,299) and HDRFX1 ($5,999) are examples of top prosumer camcorders, but there are yet more expensive HDV models. Canon's HV10 ($1,599) and HV20 ($1,799) both use HDV, the latter's video quality for the price widely praised by critics.

I want a small, convenient HD camcorder that can I take with me wherever I go, with a long battery life and able to resist a few spills.

A flash-memory based HD camcorder is ideal. Since the storage media is so light, the camcorder itself will be smaller and lighter than ones using HDDs or with the machinery needed to burn to discs. At *APC*, we've tested a couple of flash memory-based camcorders and have been pleasantly surprised at how convenient they are. They can feel like small digital cameras rather than a camcorder.

I want an entry-level HD camcorder that enables me to experience high-definition video, but at around the same price of high-end DV camcorders.

We like the concept behind Sanyo's camcorders — keep them affordable by skimping on the frills (but ensuring the fundamentals are still covered). The Xacti HD1000 records in AVCDH at 1,920 x 1,080 to a flash card. You can pick one up for around $1,000 — about the same price as a high-end DV camcorder, but with far superior quality. apc

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Only JVC's GZ-HD7 HD Everio offers Full HD 1920 x 1080 pixel recording.† With the combination of a pro-grade Fujinon HD lens, 3CCD image capture and a high capacity 60GB Hard Disk Drive, the Everio advantages add up. And because it's an Everio, you'll never need to fumble with tapes or DVDs again. Your dream camcorder is here.
For more information contact JVC on 1300 728 225 or visit www.jvc.com.au

*T3 magazine July, 2007. †As at July, 2007

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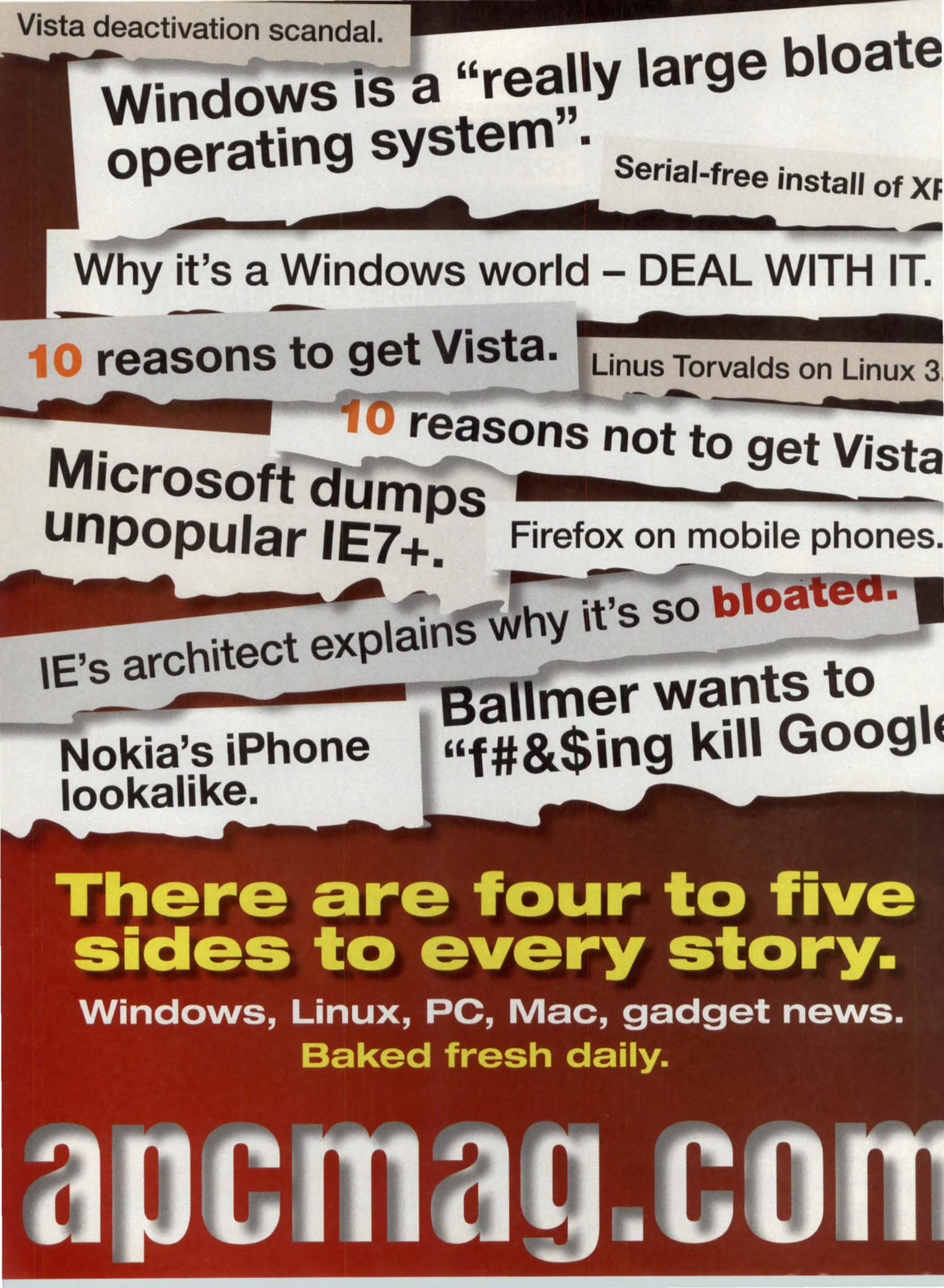
The Perfect Experience


Vista deactivation scandal.
Windows is a "really large bloate
operating system".
Serial-free install of XP
Why it's a Windows world – DEAL WITH IT.
10 reasons to get Vista.
Linus Torvalds on Linux 3
10 reasons not to get Vista
Microsoft dumps
unpopular IE7+.
Firefox on mobile phones.
IE's architect explains why it's so bloated.
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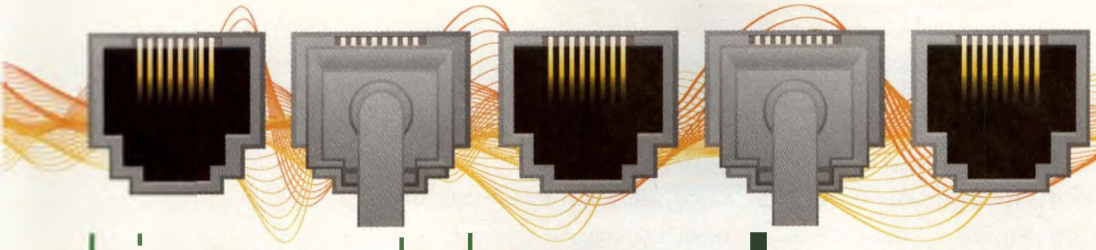


Line rental: gone!

iiNet's Naked DSL, first reported in last month's *APC*, has gone on sale with attractive pricing, *Dan Warne* reports.

If you hate Telstra's compulsory monthly line rental fee of $33 upwards, you'll love the new 'Naked DSL' service from iiNet that provides broadband over your phone line without an actual phone service. That means no dial tone and no ability to make calls via your regular landline. As a result, you can escape having a relationship with Telstra forever — and the accompanying monthly line rental fee. Apart from being much cheaper — iiNet's plans start at $49.95 for 4GB — the kicker in the pricing is unlimited local and national phone calls via iiNet's VoIP service. Included in the price is an incoming phone number for your VoIP service too, so that friends with a regular landline can call you and your phone will ring as normal. The iiNet $49.95 naked DSL plan is about $20 cheaper than Optus' popular 'Fusion' plan which also includes free calls to Optus mobiles. However, that $20 equates to about 65 minutes of calls to mobiles on any network with iiNet at its VoIP rate of 29c per minute to mobiles.

iiNet managing director Michael Malone told *APC* that with full ADSL2+ bandwidth, VoIP quality was not an issue. All Naked DSL plans are full ADSL2+. The only catch with the plans is that iiNet is joining BigPond, OptusNet, AAPT and Dodo in metering uploads as well as downloads in the plans. That means they're not the best plans for P2P users, who upload as much — or more — as they download. iiNet says it has increased quotas to compensate.

Plan name	Price	Total GB	Peak GB	Offpeak GB
Naked DSL Home 1	$49.95	4	2	2
Naked DSL Home 2	$59.95	9	3	6
Naked DSL Home 3	$69.95	30	10	20
Naked DSL Home 4	$79.95	45	15	30
Naked DSL Home 5	$89.95	90	30	60
Naked DSL Home 6	$119.95	130	65	65

HOME PLANS COME WITH:

- **Speed slowed to 64KB after quota exceeded (no excess usage fees).**
- **Unlimited local and national calls (fair-use policy applies).**
- **Peak period 12noon-2am. Off-peak 2am - 12noon.**
- **Phone calls: mobile calls 29c/min. No call connection fee.**
- **Roaming dialup account included.**

your monthly broadband guide

APC is proud to partner with the independent broadband price-monitoring service Broadband Choice (***broadbandchoice.com.au***) to bring you the best ADSL and cable deals.

The comparison table on the following pages focuses on internet service providers that best serve the majority of *APC* readers' needs – those that have national coverage (though we have included some ISPs that provide higher than 2Mb/s speed services in limited areas).

Only those meeting at least three of our four plan selection criteria are listed:

Budget plan: cheapest deal under $35/month.

Light plan: cheapest deal under $60/month, with at least 512Kb/s speed and 1GB data.

Family plan: largest download allowance under $80/month, at least 512Kb/s and 10GB data.

High-speed: cheapest 1.5Mb/s plan under $100/month, with 10GB data minimum.

If an ISP has "unlimited downloads" but speed is throttled after reaching a certain limit, the portion in which you can get full-speed downloads is listed as its limit.

APC has picked the lowest price for a contract period of six months or less for broadband installation. Otherwise, the lowest-priced option was selected.

The installation price doesn't include a modem because you may find you'll get better value by buying one separately.

Can't find your provider in our list? That's because some of the largest ISPs, and many smaller ones, didn't meet the selection criteria. There may be ISPs we didn't list that will provide better deals (but which only service your local area or state).

ISPs enter their own information into the Broadband Choice database. ISPs can contact bc@whirlpool.net.au for more details on how to become part of the database.

Data for our table was extracted from the Broadband Choice database on 20 November 2006.

in brief

CHEAP POWERLINE NETWORKING

Belkin is to introduce Australia's cheapest powerline networking adaptors. A pair of 85MB powerline adaptors will cost just $149 and will be on sale in February. Belkin says the technology for powerline networking within the home has been attractive for quite some time, but the stumbling block has been the high cost of the adaptors, which often ran over $300 for a pair. Belkin is hoping people with Wi-Fi coverage problems will finally be able to afford the powerline networking adaptors.

Belkin's new entry into the home powerline networking market lowers prices.

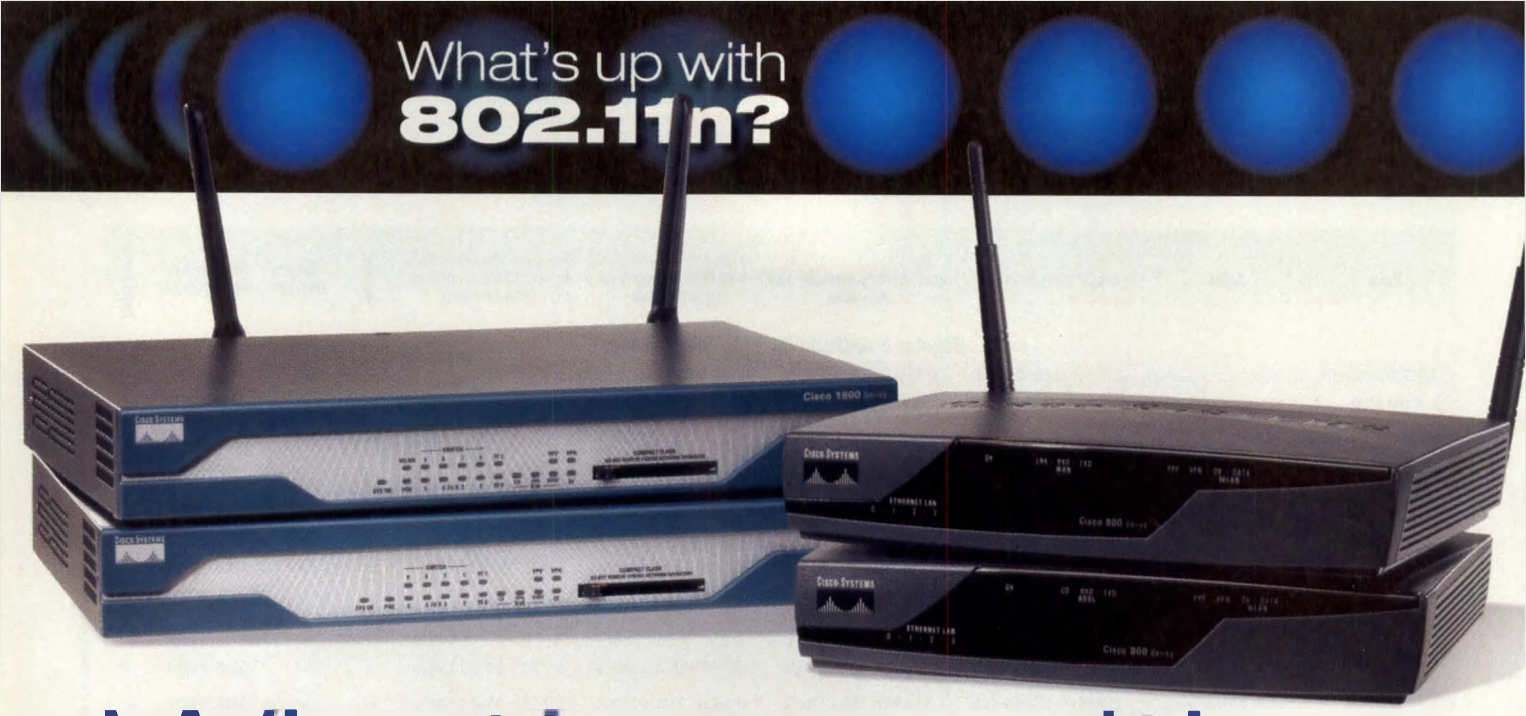
VIRTUAL VISA CARD OFFERS SAFER ONLINE SHOPPING

New 'Pre-paid' Visa cards are intended to reduce scams such as credit card fraud and boost confidence in online shopping by doing away with the real-world plastic cards altogether. Australian customers will be able to buy the 'VCard' in the same way as a pre-paid mobile phone account, by handing over cash at a retail outlet. VCards can also be bought using a debit or credit card, for those who want to keep their plastic in the real world and use only the virtual cards online. They can also be purchased online (through *www.virtualvcard.com*) using BPay.

Name	Online	Budget plan (under $35)	Light plan (under $60, at least 512Kb/s, minimum 10GB data limit)	Family plan (under $80, at least 512Kb/s, minimum 10GB data limit)	High-speed plan (under $100, at least 1.5Mb/s, minimum 10GB data limit)	National	Spam filtering	Setup fee and contract length	Rapid transfer
Super-fast broadband ISPs (faster than 1.5Mb/s)									
aaNet ADSL2+	www.aanet.com.au	$19.90†* 1GB+ 24Mb/s	$39.90†* 8GB+ 24Mb/s	$49.90†* 16GB+ 24Mb/s	$79.90†* 32GB+ 24Mb/s	✘	✘	$119 12mths	✘
AAPT LiveNet ADSL2+	http://home.aapt.com.au	$29.95† 1GB^ 24Mb/s	$39.95† 5GB^ 24Mb/s	$59.95† 20GB^ 24Mb/s	N/A	✘	✔	$100 1mth	✘
AuNix ADSL 2	www.aunix.com.au	N/A	$44.95† 20GB+^ 24Mb/s	$59.95† 30GB+^ 24Mb/s	$59.95† 30GB+^ 24Mb/s	✔	✔	$155 12mths	✔
BKB Home ADSL2+ Preferred	www.bkb.net.au	N/A	$44.95† 10GB 24Mb/s	$59.95† 25GB 24Mb/s	$79.95† 40GB 24Mb/s	✘	✔	$89.95 12mths	✘
BKB Home ADSL2+ Standard	www.bkb.net.au	N/A	$59.95† 5GB 24Mb/s	$69.95† 15GB 24Mb/s	$99.95† 40GB 24Mb/s	✘	✔	$89.95 12mths	✘
Blackstump ADSL2	www.blackstump.net.au	N/A	$44.95† 20GB+ 2Mb/s	$59.95† 30GB+ 4Mb/s	$59.95† 30GB+ 4Mb/s	✔	✔	$129.95 12mths	✔
Comcen ADSL2+	www.comcen.com.au	$29.95†* 1GB+ 24Mb/s	$39.95† 5GB+ 24Mb/s	$69.95† 40GB 24Mb/s	$69.95† 40GB 24Mb/s	✘	✔	$50 12mths	✘
Comstech Systems ADSL2+	www.comstech.com.au	N/A	$51.50† 5GB 24Mb/s	$66.95† 25GB 24Mb/s	$77.50† 50GB 24Mb/s	✔	✔	$133.95 6mths	✔
Dodo Super Fast ADSL2+	www.dodo.com.au	$9.99†* 1GB+^ 24Mb/s	$29.99†* 5GB+^ 24Mb/s	$49.99†* 15GB+^ 24Mb/s	N/A	✘	$1.90	$129.99 1mth	✘
Dodo High Speed ADSL2+	www.dodo.com.au	$29.99†* 1GB+^ 24Mb/s	$39.99†* 5GB+^ 24Mb/s	$59.99†* 15GB+^ 24Mb/s	N/A	✘	$1.90	$129.99 1mth	✘
Empcom ADSL2+	www.empcom.net	N/A	$59.95 20GB 24Mb/s	$59.95 20GB 24Mb/s	$89.95 40GB 24Mb/s	✘	✘	$129 6mths	✘
EscapeNet ADSL2+	www.esc.net.au	$19.90† 500MB 24Mb/s	$39.90† 5GB 24Mb/s	$59.90† 25GB 24Mb/s	$89.90† 50GB 24Mb/s	✔	✔	$0 12mths	✔
G-node ADSL2+	www.g-node.com.au	N/A	$39.90† 5GB 24Mb/s	$69.90† 40GB 24Mb/s	$69.90† 40GB 24Mb/s	✘	✔	$0 12mths	✔
Green Tree Frog ADSL 2+ ULL	www.greentreefrog.net.au	$29.95† 2GB 24Mb/s	$39.60† 5GB 24Mb/s	$66† 20GB 24Mb/s	$99† 40GB 24Mb/s	✘	✔	$165 12mths	✘
iiNet broadband2+ ADSL (24Mbit)	www.iinet.net.au	$29.95† 500MB+ 24Mb/s	$49.95† 7GB+ 24Mb/s	$69.95† 20GB+ 24Mb/s	$99.95† 40GB+ 24Mb/s	✘	✔	$79.95 6mths	✘
ISP ADSL2+	http://w3.isp.net.au	N/A	$36.30†* 16GB 24Mb/s	$69.30†* 42GB 24Mb/s	$69.30†* 42GB 24Mb/s	✘	✔	$145.65 6mths	✘
Internode Extreme ADSL2+	www.internode.on.net	N/A	$59.95 20GB 24Mb/s	$59.95 20GB 24Mb/s	$74.95 30GB 24Mb/s	✘	✔	$129 6mths	✘
iSage ADSL 2	www.isage.net.au	N/A	$44.95† 20GB+ 24Mb/s	$59.95† 30GB+ 24Mb/s	$59.95† 30GB+ 24Mb/s	✔	✔	$155 12mths	✔
Koala Residential ADSL2+	www.koalatelecom.com.au	N/A	$44.95† 5GB+ 24Mb/s	$69.95† 20GB+ 24Mb/s	$89.95† 30GB+ 24Mb/s	✔	✔	$149.95 6mths	✘
Koala Usenet Dedicated	www.koalatelecom.com.au	N/A	$49.95† 30GB 24Mb/s	$59.95† 50GB 24Mb/s	$49.95† 30GB 24Mb/s	✔	✔	$149.95 6mths	✔
Netspace Home ADSL2+	www.netspace.net.au	$9.95†* 500MB 24Mb/s	$39.95† 5GB+ 24Mb/s	$69.95† 20GB+ 24Mb/s	$89.95† 30GB+ 24Mb/s	✘	✔	$99 6mths	✘
Netspace SOHO ADSL2+	www.netspace.net.au	N/A	$49.95† 5GB 24Mb/s	$59.95† 10GB 24Mb/s	$99.95† 30GB 24Mb/s	✘	✔	$99 6mths	✘
OptusNet Cable	http://personal.optus.com.au	N/A	$59.99† 15GB^ 10Mb/s	$59.99† 15GB^ 10Mb/s	$99.99† 30GB^ 10Mb/s	✘	✔	$89 12mths	✘
OptusNet DSL Direct	http://personal.optus.com.au	N/A	$59.99† 15GB^ 24Mb/s	$59.99† 15GB^ 24Mb/s	$99.99† 30GB^ 24Mb/s	✘	✔	$89 12mths	✘
PrimusNET up to 8000Kbps	www.primus.com.au	$29.95† 1GB 8Mb/s	$49.95† 5GB 8Mb/s	$69.95† 20GB 8Mb/s	$89.95† 40GB 8Mb/s	✘	$4	$118 1mth	✘
PrimusNET ADSL2+	www.primus.com.au	$29.95† 1GB+ 24Mb/s	$49.95† 7GB+ 24Mb/s	$69.95† 12GB+ 24Mb/s	N/A	✘	$4	$0 12mths	✘
Soul ADSL2+	www.mysoul.com.au	$34.95† 2GB+ 24Mb/s	$44.95† 5GB+ 24Mb/s	$69.95† 30GB+ 24Mb/s	$69.95† 30GB+ 24Mb/s	✘	✔	$119 12mths	✘
Spin ADSL2+	www.spin.net.au	$29.95†* 1GB+ 24Mb/s	$39.95† 5GB+ 24Mb/s	$69.95† 40GB 24Mb/s	$69.95† 40GB 24Mb/s	✘	✔	$50 12mths	✘
SuperNerd ADSL2+	www.supernerd.com.au	$20† 1GB 24Mb/s	$30† 5GB 24Mb/s	$70† 45GB 24Mb/s	$60† 35GB 24Mb/s	✘	✔	$55 12mths	✔
TPG Residential ADSL2+	www.tpg.com.au	$29.99* 600MB 24Mb/s	$49.99 18GB+ 24Mb/s	$69.99 40GB+ 24Mb/s	$59.99 30GB+ 24Mb/s	✘	✔	$59.95 12mths	✘
Vintek 20000k ADSL 2+	www.vintek.net	N/A	$59.95 20GB 24Mb/s	$59.95 20GB 24Mb/s	$89.95 40GB 24Mb/s	✘	✔	$129 6mths	✘
Westnet Broadband2+	www.westnet.com.au	$29.95†* 500MB 24Mb/s	$49.95† 5GB+ 24Mb/s	$69.95† 10GB+ 24Mb/s	N/A	✘	$0.83	$139 12mths	✘
Wix ADSL2+	www.wix.com.au	N/A	$39.95† 5GB 24Mb/s	$59.95† 20GB 24Mb/s	$99.95† 50GB 24Mb/s	✘	✔	$0 12mths	✔
Regular broadband ISPs (1.5Mb/s or less)									
.Netcall ADSL (Bundled)	www.netcall.com.au	$24.90†* 2GB+ 256Kb/s	$44.90†* 16GB+ 1.5Mb/s	$54.90†* 24GB+ 1.5Mb/s	$84.90†* 32GB+ 8Mb/s	✔	✔	$145 12mths	✔
.Netcall ADSL (Unbundled)	www.netcall.com.au	$29.90* 2GB+ 256Kb/s	$49.90* 16GB+ 1.5Mb/s	$59.90* 24GB+ 1.5Mb/s	$89.90* 32GB+ 8Mb/s	✔	✔	$145 12mths	✔
aaNet ADSL (Bundled)	www.aanet.com.au	$24.90†* 2GB+ 256Kb/s	$44.90†* 16GB+ 1.5Mb/s	$54.90†* 24GB+ 1.5Mb/s	$84.90†* 32GB+ 8Mb/s	✔	✘	$145 12mths	✔
aaNet ADSL (Unbundled)	www.aanet.com.au	$29.90* 2GB+ 256Kb/s	$49.90* 16GB+ 1.5Mb/s	$59.90* 24GB+ 1.5Mb/s	$89.90* 32GB+ 8Mb/s	✔	✘	$145 12mths	✔

Name	Online	Budget plan (under $35)	Light plan (under $60, at least 512Kb/s, minimum 1GB data limit)	Family plan (under $80, at least 512Kb/s, minimum 10GB data limit)	High-speed plan (under $100, at least 1.5Mb/s, minimum 10GB data limit)	National	Spam filtering	Setup fee and contract length	Rapid transfer
Regular broadband ISPs (1.5Mb/s or less)									
AAPT Broadband	http://home.aapt.com.au	$34.95† 1GB^ 256Kb/s	$59.95† 15GB^ 1.5Mb/s	$59.95† 15GB^ 1.5Mb/s	N/A	✔	✔	$100 1mth	✔
AuNix ADSL	www.aunix.com.au	$29.95† 15GB 256Kb/s	$59.95† 20GB+ 1.5Mb/s	$59.95† 20GB+ 1.5Mb/s	$74.95† 35GB 1.5Mb/s	✔	✔	$99 6mths	✔
Australia On Line ADSL	www.australiaonline.net.au	$29.95 1GB+ 256Kb/s	$49.95 5GB 1.5Mb/s	$64.95 10GB 1.5Mb/s	N/A	✔	✔	$99 6mths	✔
Australis Internet ADSL	www.australis.net	$34.95 1GB 256Kb/s	$59.95 30GB+ 1.5Mb/s	$59.95 30GB+ 1.5Mb/s	$59.95 30GB+ 1.5Mb/s	✔	✔	$139 1mth	✔
Beagle Internet ADSL	www.beagle.com.au	$29.95 1GB 256Kb/s	$56.95 5GB 1.5Mb/s	$68.95 15GB 1.5Mb/s	$79.95 50GB 1.5Mb/s	✔	✔	$157 1mth	✔
Blackstump ADSL	www.blackstump.net.au	$34.95 5GB 256Kb/s	$57.95 5GB 1.5Mb/s	$69.95 15GB 1.5Mb/s	$79.95 No limit 1.5Mb/s	✔	✔	$108 6mths	✔
Blackstump ADSL Bundles	www.blackstump.net.au	$34.95†* 500MB 512Kb/s	$47.95† 5GB 1.5Mb/s	$69.95† 15GB 1.5Mb/s	$79.95† No limit 1.5Mb/s	✔	✔	$108 6mths	✔
BBI Flat Rate DSL	www.brownbear.net.au	$32.95 2GB 256Kb/s	$56.95 5GB 1.5Mb/s	$69.95 25GB 1.5Mb/s	$79.95 35GB 1.5Mb/s	✔	✔	$119 6mths	✔
BBI Excess DSL	www.brownbear.net.au	$32.95* 2GB 256Kb/s	$56.95* 5GB 1.5Mb/s	$69.95* 25GB 1.5Mb/s	$79.95* 35GB 1.5Mb/s	✔	✔	$119 6mths	✔
Brown Bear DSL/ Phone	www.brownbear.net.au	$19.95†* 1GB 256Kb/s	$54.95† 5GB 1.5Mb/s	$64.95† 25GB 1.5Mb/s	$74.95† 35GB 1.5Mb/s	✔	✔	$119 6mths	✔
Chariot ADSL	www.chariot.net.au	$29.95 1GB 256Kb/s	$49.95 10GB 1.5Mb/s	$69.95 25GB 1.5Mb/s	$79.95 40GB 1.5Mb/s	✔	✔	$110 6mths	✔
Comcen Internet ADSL	www.comcen.com.au	$29.95† 10GB 256Kb/s	$44.95†* 5GB+ 1.5Mb/s	$69.95† 20GB+ 1.5Mb/s	$99.95† 30GB+ 1.5Mb/s	✔	✔	$99 6mths	✔
Concept Networks ADSL	www.conceptual.net.au	$29.95* 500MB 256Kb/s	$59.95* 5GB 1.5Mb/s	$69.95* 15GB 1.5Mb/s	$89.95 30GB 1.5Mb/s	✔	✔	$99 6mths	✔
Data Oz Residential ADSL	www.dataozsolutions.com.au	$34.95 2.5GB+ 256Kb/s	$49.95 5GB+ 1.5Mb/s	$64.95 15GB+ 1.5Mb/s	$84.95 30GB+ 1.5Mb/s	✔	✔	$159.95 6mths	✔
Dinkum Internet ADSL	www.dinkum.net.au	$34.95 1GB 256Kb/s	$59.95 5GB 1.5Mb/s	$69.95 15GB 1.5Mb/s	$89.95 50GB 1.5Mb/s	✔	✔	$129 6mths	✔
Dodo ADSL	www.dodo.com.au	$19.99†* 500MB+^ 256Kb/s	$39.99†* 5GB+^ 1.5Mb/s	$59.99†* 15GB+^ 1.5Mb/s	N/A	✔	$1.90	$129.99 1mth	✔
EFTel ADSL	http://w3.eftel.com	$19.95†* 500MB 256Kb/s	$59.95†* 7GB 1.5Mb/s	$69.95†* 25GB+ 1.5Mb/s	N/A	✔	✔	$125 12mths	✔
EscapeNet ADSL Home	www.esc.net.au	$29.90 500MB 256Kb/s	$49.90 5GB 1.5Mb/s	$69.90 25GB 1.5Mb/s	$99.90 50GB 1.5Mb/s	✔	✔	$99 6mths	✔
eTelecom ADSL	www.etelecom.com.au	$29.95†* 1GB 256Kb/s	$59.95†* 5GB 1.5Mb/s	$69.95†* 15GB 1.5Mb/s	N/A	✔	✔	$99 12mths	✔
Hotkey Internet ADSL	www.hotkey.net.au	$34.95* 1GB 1.5Mb/s	$44.95* 5GB 1.5Mb/s	$69.95 12GB 1.5Mb/s	N/A	✔	✔		✔
ISP ADSL	http://w3.isp.net.au	$33* 3GB 256Kb/s	N/A	$69.30* 25GB 1.5Mb/s	$88* 30GB 8Mb/s	✔	✔	$132 6mths	✔
Internode Home ADSL	www.internode.on.net	N/A	$49.95 5GB 1.5Mb/s	$69.95 20GB 1.5Mb/s	$84.95 30GB 1.5Mb/s	✔	✔	$129 6mths	✔
ISage Internet ADSL	www.isage.net.au	$34.95 15GB+ 256Kb/s	$59.95† 20GB+ 1.5Mb/s	$59.95† 20GB+ 1.5Mb/s	$79.95 35GB+ 1.5Mb/s	✔	✔	$99 6mths	✔
ITEL ADSL	www.itel.net	$29.95†* 500MB 256Kb/s	$59.95†* 5GB 1.5Mb/s	N/A	$79.95† 60GB 1.5Mb/s	✔	✔	$129 12mths	✔
Koala Residential ADSL1	www.koalatelecom.com.au	$34.95† 2.5GB+ 256Kb/s	$49.95† 5GB+ 1.5Mb/s	$69.95† 15GB+ 1.5Mb/s	$89.95† 30GB+ 1.5Mb/s	✔	✔	$149.95 6mths	✔
Koala Business ADSL1	www.koalatelecom.com.au	$34.95†* 2GB+ 512Kb/s	$49.95†* 7GB+ 1.5Mb/s	$59.95†* 15GB+ 1.5Mb/s	$79.95†* 30GB+ 1.5Mb/s	✔	✔	$149.95 6mths	✔
Lizzy ADSL	www.lizzy.com.au	$29.95 1GB+ 256Kb/s	$49.95 5GB 1.5Mb/s	$64.95 10GB 1.5Mb/s	N/A	✔	✔	$99 6mths	✔
Netspace Home ADSL	www.netspace.net.au	$29.95† 10GB+ 256Kb/s	$39.95† 5GB+ 1.5Mb/s	$69.95† 20GB+ 1.5Mb/s	$99.95† 30GB+ 1.5Mb/s	✔	✔	$99 6mths	✔
NetSpeed ADSL	www.netspeed.com.au	$29.95†* 1GB+ 256Kb/s	$54.95†* 5GB+ 1.5Mb/s	$64†* 10GB+ 1.5Mb/s	N/A	✔	$2	$139 12mths	✔
Pacific Internet DSL	www.pacific.net.au	$29.95† 3GB 256Kb/s	$49.95 5GB 1.5Mb/s	$49.95† 10GB 1.5Mb/s	N/A	✔	✔	$99 6mths	✔
Primus Flexible Broadband	www.primus.com.au	$24.95† 500MB 256Kb/s	$54.95† 5GB 1.5Mb/s	$69.95† 20GB 1.5Mb/s	N/A	✔	$4	$118 1mth	✔
Rabbit Internet ADSL	http://rabbit.com.au	$28.95†* 500MB 256Kb/s	$58†* 5GB 1.5Mb/s	$70†* 30GB 1.5Mb/s	$70†* 30GB 1.5Mb/s	✔	✔	$104.50 6mths	✔
Soul ADSL	www.mysoul.com.au	$29.95 No limit 256Kb/s	$59.95† 10GB+ 1.5Mb/s	$59.95† 10GB+ 1.5Mb/s	N/A	✔	✔	$119 12mths	✔
Spin Internet	www.spin.net.au	$29.95† 10GB 256Kb/s	$44.95†* 5GB+ 1.5Mb/s	$69.95† 20GB+ 1.5Mb/s	$99.95† 30GB+ 1.5Mb/s	✔	✔	$99 6mths	✔
SuperNerd SuperDSL	www.supernerd.com.au	$26.95 1GB 256Kb/s	$59.95 15GB 1.5Mb/s	$59.95 15GB 1.5Mb/s	$72.95 30GB 1.5Mb/s	✔	✔	$115 6mths	✔
TalkTODAY ADSL	www.talktoday.com.au	$29.95† 500MB^ 256Kb/s	$54.95† 5GB^ 1.5Mb/s	$69.95† 30GB^ 1.5Mb/s	$69.95† 30GB^ 1.5Mb/s	✔	✔	$119 6mths	✔
TSN Broadband	www.tsninternet.com.au	N/A	$49.95 5GB 1.5Mb/s	$69.95 20GB 1.5Mb/s	$99.95 40GB 1.5Mb/s	✔	✔	$129 6mths	✔
Vintek Personal ADSL	www.vintek.net	N/A	$49.95 5GB 1.5Mb/s	$69.95 20GB 1.5Mb/s	$99.95 40GB 1.5Mb/s	✔	✔	$129 6mths	✔
Water Sprite ADSL1 Shaped plans	www.watersprite.net.au	$35 2GB 256Kb/s	$60 5GB 1.5Mb/s	$70 15GB 1.5Mb/s	$84 35GB 1.5Mb/s	✔	✔	$150 6mths	✔
Water Sprite ADSL1 Excess charged plans	www.watersprite.net.au	$35* 2GB 256Kb/s	$60* 5GB 1.5Mb/s	$70* 15GB 1.5Mb/s	$84* 35GB 1.5Mb/s	✔	✔	$150 6mths	✔
Westnet Broadband1	www.westnet.com.au	$29.95† 500MB 256Kb/s	$59.95† 10GB+ 1.5Mb/s	$69.95† 20GB+ 1.5Mb/s	$99.95† 40GB+ 1.5Mb/s	✔	$0.83	$99 6mths	✔

*Key: * ISP charges excess usage fees when you exceed your download limit; † This price only available if bundled with long distance telephony from the ISP; + Additional download allowance available with this plan for use in off-peak periods; ^ ISP combines sent and received data when calculating usage.*



What's up with 802.11n?

APC speaks with _Chris Dobrec_ about the finalising of the 802.11n standard and what Wi-Fi will be doing for us in the future.

The Institute of Electrical and Electronics Engineers (IEEE) dictates what goes on and how Wi-Fi technologies work. Like every wireless networking company, Cisco/Linksys relies on the speed at which the IEEE finalises its standards.

But with the release of draft 802.11n, a rebellion occurred in the Wi-Fi industry that resulted in early drafts, updated revisions and variations on products from almost every company. The IEEE relented and worked with manufacturers as long as compatibility caveats were printed on boxes. But if products are working well today, what are we waiting for in the final release of 802.11n?

APC: Why do you think the N approval process has taken so long? Is it a long continuum or is this more typical of how these things work?
CHRIS DOBREC: There are standards of processes and they involve inputs from many people. Mostly, the standard processes turn out products that meet the needs of the market; this is just another example of where we think it's going to go. Again, the overall process is probably a little longer than anyone would have hoped, but there's light at the end of the tunnel. We're now at the point where we're down to the brass tacks.

APC: How much do you get involved in approving the spec? Do you suggest features and/or offer feedback on any concerns during evaluation?
CD: We are participants in the process. We are also very particular in the chipset providers that we select, so we choose key partners and stick with those that are building silicon designs to the spec in line with what the overall industry objectives are.

And N is really about building a wireless platform that you can satisfactorily run multimedia across — data and video. We also work with our silicon suppliers to make sure the right things are done to meet our needs and our consumers' needs, as well as the industry as a whole.

APC: What can we expect from the final approved N spec?
CD: We're getting to the point now where the final draft is going to be what the market requires. Even to the degree that the final features will be enabled from firmware downloads again, going back to selecting the right silicon partners. We're very confident that the final draft of the spec delivered in our products is based on the silicon partners and firmware upgrades.

APC: The 802.11n specification appears to provide greater speed but doesn't address distance, what is happening here?
CD: The transition [from 802.11g to 802.11n] is in its early stages, although we're pretty close to finishing the draft. There are a lot of good innovations and fixes that are going on, almost on a monthly basis, so with every new release of drivers and every secondary release of chipsets, we're seeing better performances. The range is kind of a misnomer — 802.11n covers 100m. It's a function of the power levels you transmit at. 100m at 100W is fundamentally what this [wireless] spec is if it's running B, G or N. Where N gets an advantage is with multiple input, multiple output technologies and the advanced antennas, which allow you to get multiple streams simultaneously to increase the bandwidth. The other advantage is that when we get final implementations of the product, you will see throughput at the far ranges. So we're getting a lot of good enhancements and performance from the drivers. And it does require that you have N at both sides of the equation. So it's not just the access point, but the node point as well. We're almost at the point now where the laptop guys — for example — are going to be comfortable enough deploying the technology in laptops,

The iPhone represents the convergence of enterprise and consumer kit.

WI-FI CONVERGENCE

One issue that Cisco and Linksys will have to address is the convergence of the enterprise and the consumer markets. Business users in the US, and now UK, buy the Apple iPhone and expect it to work both at home and work, and while media streaming is often the purview of the home market, it's also encroaching in the corporate world. In 2007, Linksys announced a new line of 'business' routers as part of a new push to expand their consumer presence, and there's a formal 'trade up' program for companies ready to upgrade to Cisco routers. It's still muddled by the fact that a Linksys IP phone is essentially a business product for those who want to save money making frequent phone calls, and that Cisco is perceived in the market as a large company provider (1,000 employees or more). One challenge for Linksys is to upscale their products to appeal to a larger business customer, while never encroaching on the networking landscape so dominated by their parent company.

in which case you're going to see the benefits start to come to fruition. We're pretty confident our final draft for 802.11n will live up to its goal.

APC: Will the final spec be a software upgrade?
CD: No — it will be a firmware upgrade.

APC: Wireless protected setup (WPS) can be a pain to configure, what are you doing about it?
CD: We are firm believers in WPS, it's the right direction to go. As a matter of fact, if you look at our early N routers they have the capabilities to do a push button setup [called SecureEasy Setup or SES]. We are working in a standards process to ensure it gets implemented correctly. The days of 'the user figures it out' are coming to an end, so we as vendors are working to solve these problems. Linksys is very committed to push button security setup and ease of setup in WPS.

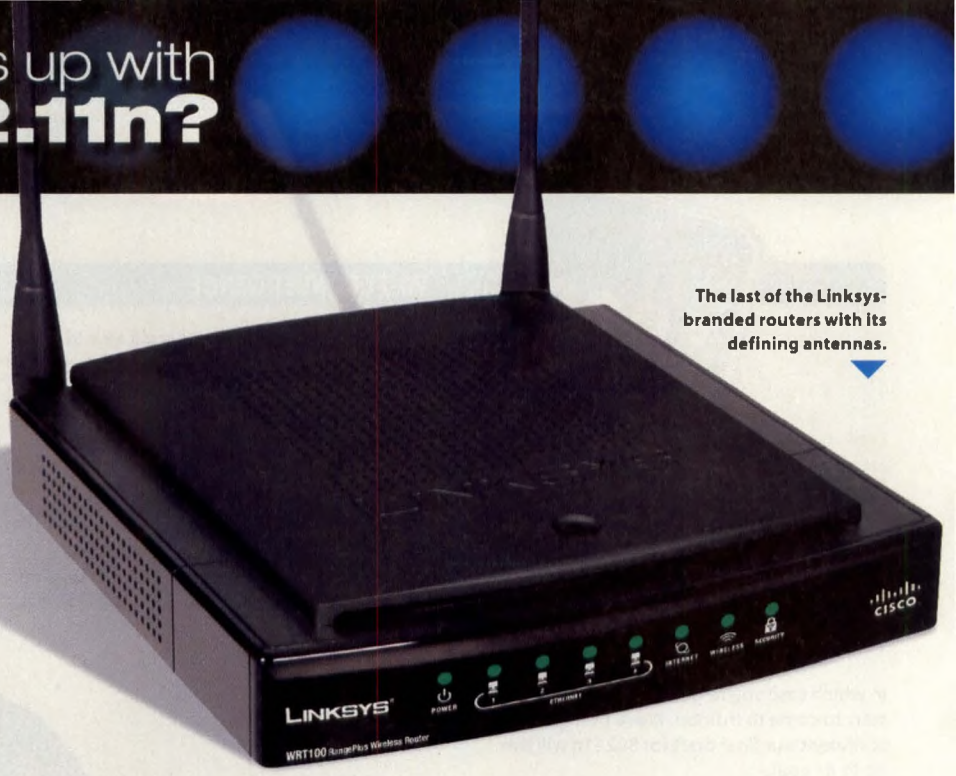
APC: Why are you down-playing SecureEasy Setup?
CD: This is used in existing products. The fact of the matter is these networks are heterogeneous so there are a lot of different devices that you need to contend with. We're looking to make that easier, for example, with our Linksys EasyLink Advisor, which not only scans the network for our own devices, but for other devices as well.

APC: Have you thought about partnering with a company like Network Magic for setup?
CD: We looked at all the players that provide that capability. That is certainly a company we could partner with.

APC: Do you think the ultra-simple Apple setup is the right direction for wireless networking?
CD: The market is evolving. If you look at who we were selling to a few years

Profile

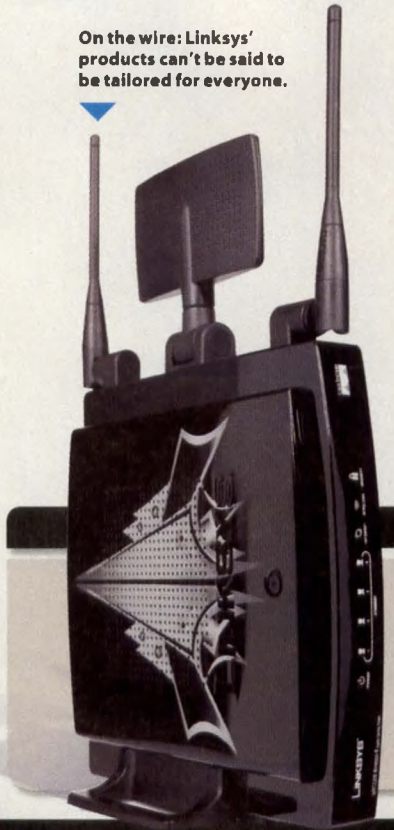
Chris Dobrec is the senior director of worldwide strategy at Cisco/Linksys, and is in charge of the overall strategy for Linksys. Dobrec plans partnerships, business development, new product ideas and hardware development. His background is in network design, computer architecture and engineering, product development and management. Dobrec has a double major in electrical engineering and computer science from the University of California at Berkeley and has also worked previously at AT&T Bell Labs, and at startups Kalpana and Ipsilon Networks.



The last of the Linksys-branded routers with its defining antennas.

ago, for example, it was classic early adopters. And those folks, by definition, are technically savvy. They are reasonably self-sufficient. They're certainly not intimidated by retail, or about making a technology choice and taking it home and implementing it. The mass market has the same application requirements; they just may not have the same technical capabilities, so we need to mask that complexity. We're investing heavily in ease-of-use and easy-install characteristics or attributes and the products have become the very thing you described.

APC: Where are you at with IP phones for the consumer?
CD: In terms of the product portfolios, it's very rich. We probably have one of the most robust product offerings in the market at the moment. Our CIT phones, which are traditional cordless technologies based on SIP [session initiation protocol], are Wi-Fi phones. They're actually selling in reasonable volume today. Some of the underlying industry issues are the support for internet service providers. Now we have folks like Skype who have large numbers of users who are buying these phones and using them on a global basis. We've had phones that are tied into Yahoo! Messenger services. They're doing reasonably well in the market, but it will really take off when the Tier One service providers [such as AT&T] start featuring voice-over-IP as part of their overlying infrastructure. And that's happening at different rates in different parts of the world. Here in North America, of course, you have the cable MSOs [multiple system operators] who are using their broadband infrastructure in delivering digital voice services on a voice-over-IP platform. For example, the numbers of subscribers are in the several million, but with some pretty interesting growth characteristics. You go to other parts of the world, France for example, where Prince Telecom is actually delivering VoIP in every new DSL connection they deliver. When the big guys start jumping in you'll see the volumes really start taking off.



On the wire: Linksys' products can't be said to be tailored for everyone.

APC: Have you explored the possibility of using a Wi-Fi phone with a real mobile phone?
CD: We've actually been very active in developing access points that are optimised for deployment with dual-load phones. One of the issues you have in the marketplace, of course, is that dual-load phones are not shipping in great volume. The mobile operators have not adopted that technology. But we are closely watching what is happening in fixed mobile convergence, including some emerging trends in things like femtocell, which is a personal base station that operates in the licensed spectrum of an operator who's deploying, for example, 3G services. So an operator who may have UMTS spectrum, for example, and the very nature of UMTS — the way it's deployed today — does not have very good in-building penetration characteristics. So there are some operators in the market who are actually looking at ways to use small personal base stations, deployed inside the home and connected to the broadband connection as well to provide better coverage.

APC: How much is WiMax a factor in the Wi-Fi world?
CD: WiMax is another alternative for getting wireless into the home. It remains to be seen what kind of penetration these wireless networks will deliver. It's clear that it gives consumers another choice in terms of a broadband connection into the home. The other side of the equation is clearly that wired connections can offer more general bandwidth. More often than not more bandwidth on those last-mile connections help to solve the problem. And then if you can add quality-of-service characteristics onto some of those links, it just makes the experience better. This is why folks like Verizon are deploying fibre with FiOS, for example, or some of the folks in Europe are deploying fibre connections in Italy and the Nordics.

APC: What's your take on digital media adaptors?

WIRELESS: TOO COMPLEX

Linksys has lagged behind Apple and even their major competitors – such as Buffalo Technology and Belkin – with a truly elegant setup process. In fact, while Linksys is still dominant in the market, their products tend to appeal to early adopters looking for the best speed gains, those who want to bridge two routers for better distance, or hackers wanting to experiment with firmware, but not the new wireless user who doesn't know what an IP address is, let alone how to configure a router. No current Linksys router supports WPS, the method that Vista uses to automatically install and configure high-level security for a router. Meanwhile, new router software installers from companies like Apple have clearly defined options and a fool-proof security setup that actually works.

CD: We're already seeing VoIP being used today. I saw some data recently in France, which stated that there are four million IPTV subscribers. IP video is being delivered today. There's also some of the set-top box video that's coming over the internet and delivered overnight, especially with the advent of Adobe's presence with flash components. Lots of good-quality video is being delivered. Microsoft has Windows Media Player and some of the codecs that are delivering high-quality VoIP.

We were early entrants into that market. And we will continue to be bullish on the market in the long term. The volumes on those products have not been significant. That had a lot to do with the amount of content that was available to deliver. It had to do with the overall market acceptance of these types of product.

We've been firm believers in that and we actually think that Apple's entry into this market just reinforces our belief that the market of these streaming products is most definitely worthy of going after and of further endorsement. There is still a long way to go. The Apple products are still a bit short on delivery versus the promise, right? But I think that you're going to see a lot of innovation happening in that space over the course of the next couple of years.

APC: 802.11n ties in with digital media delivery. How does it help?

CD: From a networking perspective, we predict that the whole network will be a hybrid of both wired and wireless technology in the future. When you look at the applications that will be run inside the home, there are going to be those that are conducive to running over air and there are going to be others that are better served running over physical media, just by virtue of the location (consumer electronics for example). So we actually think that the future's networks will be hybrid in nature. You can't only use 802.11n capabilities for wireless, but also for the alternative 'no-new-wires' technology, like multimedia over Coax which is basically running high-bandwidth networking over your power-line network at home. Even in new construction or retrofit, where it's pragmatic, we're going to begin to see networks and backbones in people's homes too.

> EVEN IN NEW CONSTRUCTION AND RETROFIT, WE'RE GOING TO BEGIN TO SEE NETWORKS AND BACKBONES IN PEOPLE'S HOMES

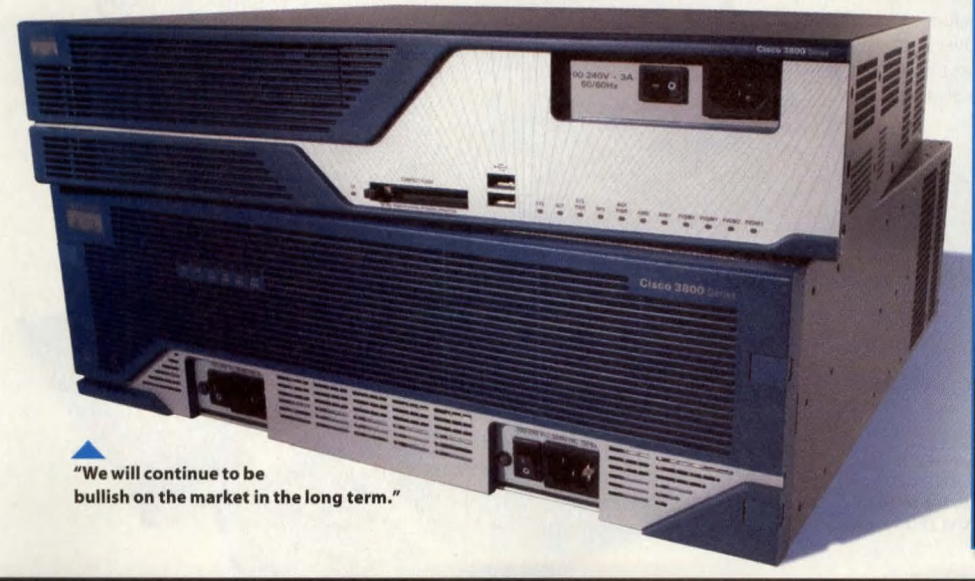
APC: Do you think wireless will ever completely replace wired?

CD: As a pragmatist, I really don't believe that it will. Again, that's why we at Linksys firmly believe that networks will be hybrids in the future. Not so long ago everybody thought that wireless technology was going to revolutionise connectivity in enterprise, but if you take a careful look at the development of enterprise networks over the course of the last 20 years, you'll see that, actually, not as much has changed as it was once thought would. There is still a great deal of physical connectivity being used in business locations. And I think that holds true in individual households as well. And as far as we're concerned, as long as consumers have flexibility and solutions that meet all of their lifestyle needs, we are willing to build the required technology.

APC: Has Linksys thought about exploring any other areas?

CD: We've been looking at the home automation market for some time. Home automation is nothing new, but there are some interesting underlying trends right now that are showing some very interesting promise. Most of that has to do with the fact that some of the key components are now being enabled by IP. So you take into account things like low-power radios that you can easily and cheaply embed in appliances or control devices in the home. It's an IP endpoint. When you couple that with IP applications that are emerging for exerting control on those devices, that's a market that we haven't stepped into yet but that we are watching very carefully indeed.

Questions still remain about ease of use for the new 802.11n products, the streaming media adaptor market, and also about whether IP phones will indeed succeed in being a major hit with consumers. Maybe with the final ratification for 802.11n, due early 2008, we will have some answers.



"We will continue to be bullish on the market in the long term."

"We firmly believe that future networks will be hybrids."

Building a **better notebook**

***David Flynn* reports on how manufacturers are employing advanced technologies to allow the latest notebooks to withstand more punishment.**

Since notebooks went mainstream, they've been subjected to the kind of daily wear and tear and knocks and tumbles that the first executive notebooks would never have survived. Notebook makers have had to respond with new materials and construction techniques.

One of the most substantial changes has been the introduction of magnesium alloy as the material of choice for constructing a notebook's frame. First to do it was Lenovo, which introduced its magnesium alloy 'rollcage' to protect the chassis of its ThinkPad notebooks. This has now been extended to the display of the new T and the R series models.

Matthew Kohut, Lenovo's worldwide competitive analyst, says "Adding the display rollcage let us reduce the thickness of our top cover displays because the display rollcage provided more of the protection. We've also drilled out holes so you don't have to have a solid sheet to protect the system."

"It's more of a honeycomb shape for the display," explains Kohut, "which at the same time helps us with wireless by getting a better range and also reducing interference from the radios and antennas in the display panel."

Other manufacturers are playing with other materials, such as the carbon fibre shell around the display of Acer's Ferrari notebooks. "It's a very tough material to manufacture," says Lindsay Tobin, product business manager (mobile) for Acer Australia. "It's quite expensive and very challenging, and initially we faced an extremely difficult ramp up in terms of the yield rate, but it's important in protecting the most valuable part of the notebook, the screen."

The 'skin' which covers that inner skeleton is also undergoing changes. Acer's latest ProFile business laptops sport a multi-layered 'holographic' material that Tobin says "gives the appearance of depth but it also has much stronger resistance to scratching. We worked on this with a Japanese company which is an expert in this field — the Japanese are leading the way in materials in this area. They don't build the notebook, just the housing".

HP is also employing multi-layer materials to minimise wear on and around the keyboard, especially those 'shiny' areas on the most-used keys which lose their tactile feel.

"It's an in-mold lamination, with different layers of laminate to protect the surface that the notebook's constructed from," says Janet Bradburn, HP Australia's market development manager for commercial notebooks.

"On the keys we call the process DuraKeys, and in other wear-and-tear areas such as the back of the display (and the palm rest just beneath the keyboard deck), it's called DuraFinish."

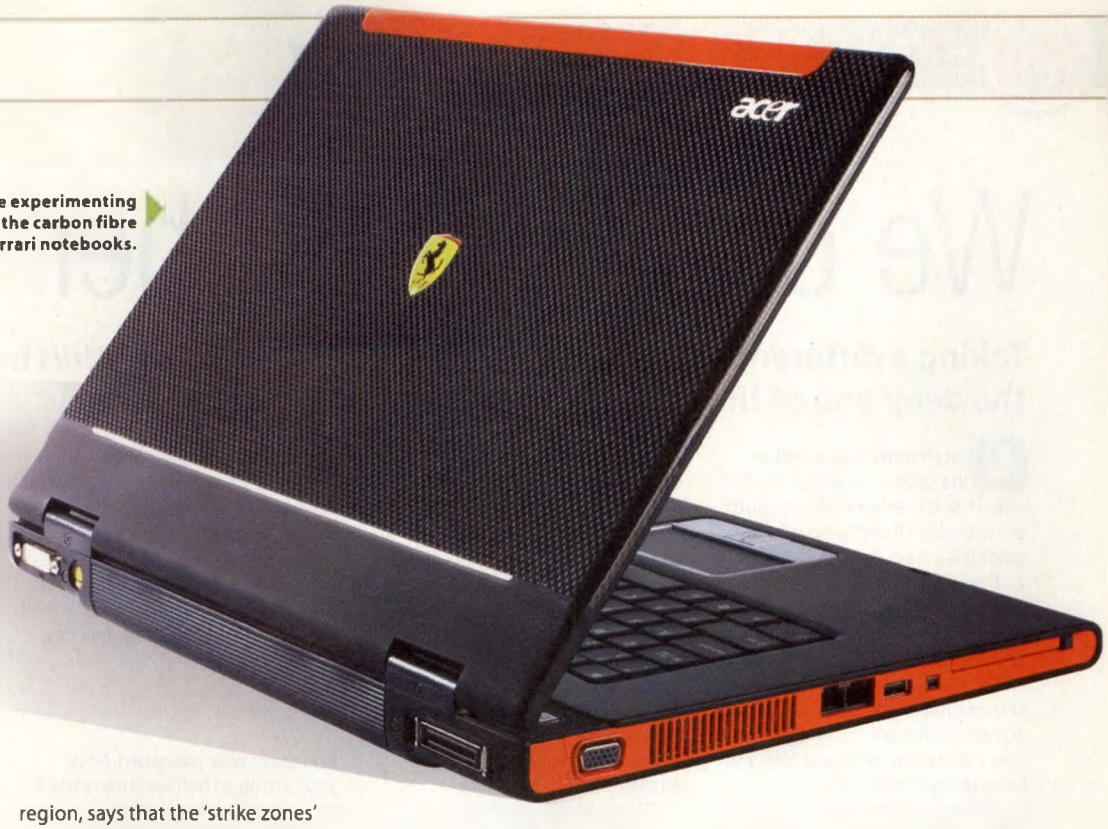
The process relies on four discrete layers, starting with the injection-moulded substrate "which is the actual notebook itself," explains Bradburn. "On top of that sits the graphics layer, which is where you put any colour or graphics or design — on the keys this includes the letters and numbers. Over that, a layer for icons such as the HP badge, and on top of all of that you have a clear polycarbonate layer with a hard-coated surface."

Yet no matter how hardy the hardware is, it's impossible to avoid physical shocks and drops. And while advanced materials can protect the notebook itself to some degree, what about its most precious cargo — the hard drive containing your data?

The concept of introducing active protection for notebook hard drives is most closely associated with the ThinkPad and its notion of 'airbags'. While not being actual airbags, of course, Lenovo used the analogy to explain to the mainstream market how sensors park the hard drive's heads in the event of sudden movement to safeguard the disk as well as the data on it.

"When we originally went shopping for the sensor it literally came from the auto industry, although we didn't initially tell the supplier what it was for because we didn't want to tip our hand," recalls Lenovo's Kohut. "We were quoted this ridiculously high price because the company was trying to account for any potential liability (from legal action). Once we explained this was going into a laptop PC, not a car, the price became much more reasonable because they didn't have to price in potential failure and death!"

Active protection for notebook hard drives is tied to the 'airbag' analogy of the ThinkPad.



Manufacturers are experimenting with materials, such as the carbon fibre shell used on Acer's Ferrari notebooks.

Kohut cites this technology as having the greatest impact on ThinkPad design. "The single biggest failure point on a user's system is the hard drive, and it's also one that we as users don't like to back up. When we introduced this technology we saw our failure rates dropped dramatically, up to 40% in some cases. In fact, the cost of adding the airbag technology to notebooks was more than recouped by the reduction in hard disk failures."

Most notebook vendors now rely on sensors and accelerometers, and many have introduced additional measures — some of which are deceptively simple yet quite effective.

"There was a period of time where hard disks were mounted in more of a 'floating' design, so there was a miniature 'buffer' between the frame of the notebook and the hard drive itself," says HP's Bradburn. "But what we found was anything larger than a very small bump or knock meant that floating design actually created additional damage to the hard drive. So we moved to a hard-mounted method which physically couples the drive to the chassis, so any shock to the notebook is shared amongst the entire magnesium alloy frame and chassis and not focussed on the hard drive itself."

Jeff Morris, client computing strategist for Dell's Asia-Pacific region, says that the 'strike zones' in Dell notebooks employ rubber around the chassis, including a strip "placed across where the hard drive is mounted. This helps absorb the shock of the notebook when it's dropped."

Buyers of the Latitude D series can even specify a hard disk that's packed in gel. "We take a 1.8in hard drive, like you'd find in the iPod. These have a higher operating shock and vibration over the 2.5in drives that you'd find in your standard notebook. The trade-off is that your rotational speed comes down, but you've got a more durable product. When you pack it inside gel, this once again dampens any shock to the hard drive if you drop the system."

Once all the design work is done, there's still the need for exhaustive reliability testing before the first models roll off the production line. To this end, Toshiba has developed a system called HALT, or 'highly accelerated lifetime testing'. "This allows us to very quickly determine if there are going to be any faults throughout the life of that machine," explains Justin White, product marketing manager for Toshiba ISD Australia.

"The HALT machine freezes the computer to -25 degrees and then cooks it to 70 degrees. This is done over and over, and at the same time the notebook is strapped to a vibrating device which subjects it to 45G of force, which is four times the lethal limit that the human body can withstand."

The procedure sounds like a torture scene from a James Bond movie, but, when it's done, Toshiba's engineers diagnose the master design for weak spots that would show up after long periods of real-world usage.

"We can see if there are any latches or cables that are going to be subject to fatigue," says White. "One thing we've done based on this is made the motherboard thicker. If a motherboard flexes, it's not typically a huge issue, but there are chips on the board that are encased in an inflexible ceramic coating. So we made the motherboard a bit thicker, which made them 50% stronger and 50% more resilient". APC

THE PROCEDURE SOUNDS LIKE A TORTURE SCENE FROM A JAMES BOND MOVIE

HP DuraKeys process

We can **rebuild** her

Taking a different route to the rest of this series, *Ashton Mills* heads right for the deep end of the pool: compiling his own Linux kernel.

Last month I took a look at the spanky-new Ubuntu 7.10 release and measured it up against our previous Open Source Challenge guidelines. And, indeed, Ubuntu 7.10 fixes and improves upon many of the issues raised by the challenge, although there are still a few rough edges.

That said, the goal of the Open Source Challenge was to see if it was possible to live on Linux alone, using only Ubuntu for work and play and everything in between.

I covered it from the perspective of a new user, unfamilar with Linux, and the types of issues that were encountered.

With Ubuntu 7.10 now in hand, I'm going to take another tack — the opposite really. From the perspective of an experienced user, how can you improve on the Ubuntu experience?

In this instalment we'll go right into the deep end — compiling your own kernel. If you haven't done this before it's an excellent way to learn about Linux under the hood, and the beauty of it is that you've always got your original Ubuntu kernel to fall back on.

WHY COMPILE?

Ubuntu — like Windows — is primed for the widest common denominator and designed to work with, hopefully, all hardware configurations. While this is good for ease of use, it means a lot of options are bundled into the kernel that you probably don't need (yes, there are modules, but not everything can be modularised) and the Ubuntu kernels are compiled with no specific CPU optimisations, so one kernel fits all.

There are those who would argue that compiling your own kernel is unnecessary (you know who you are!) — that the default Ubuntu kernel comes slick enough. That's great, and those people can keep on using the default. For everyone else wanting to tailor the kernel to their system, reap some performance benefits and learn a lot in the process, compiling your own kernel is about as geeky as it gets.

PREPPING THE SYSTEM

Compiling your own kernel is going to require, among other things, a compiler. Ubuntu has a number of development packages which make it easy to install everything you need. You're also going to need the kernel source as well, of course. Finally, anything worth doing is worth doing at the command line, I say, so open up a Terminal (Applications > Accessories > Terminal) and enter the following:

```
sudo -s
```

And enter your password. Now you're root, so behave! Now install the development packages:

```
apt-get install build-essential bin86 kernel-package libqt3-headers libqt3-mt-dev wget libncurses5 libncurses5-dev linux-kernel-devel linux-source
```

A bit of a mouthful, but that's the longest command you'll use for this. The last package, 'linux-source', will copy the kernel source tarball to your /usr/src directory, so the next step is to decompress it:

```
cd /usr/src
tar -jxvf linux-source-2.6.22.tar.bz2
ln -s linux-source-2.6.22 linux
```

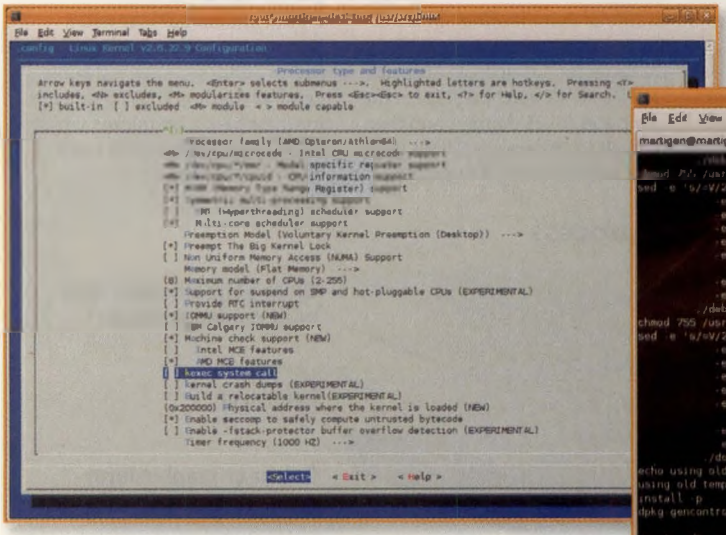
If you're doing this while the Ubuntu kernel is still 2.6.22-based, this is all you need; otherwise, replace the kernel version as appropriate with the tarball source you have. Once it finishes decompressing, you're ready to play. The last line sets up a symbolic link for 'linux', a common path for finding install Linux sources.

CONFIGURING THE KERNEL

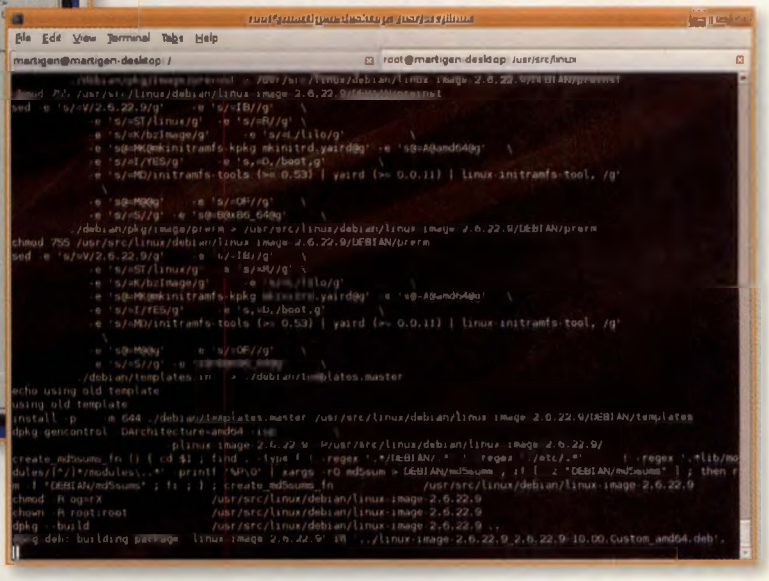
Now that the development packages and kernel source are installed, you can configure the kernel. Type the following:

```
cd linux
make menuconfig
```

And you'll be presented with a basic menu-driven interface to configure the kernel. There's hours of exploration here if you haven't done this before — start at the top and work your way down. If you just want to make some simple but



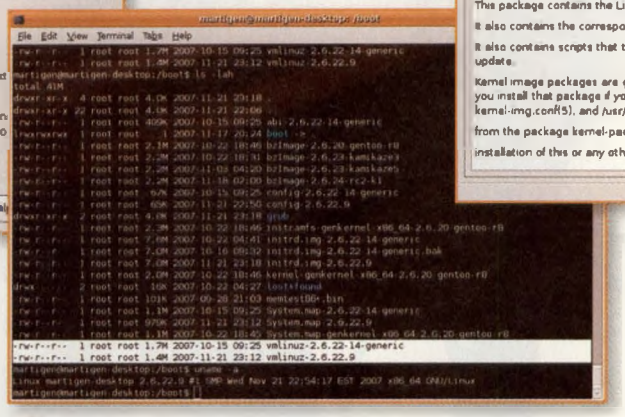
Configuring the Ubuntu kernel.

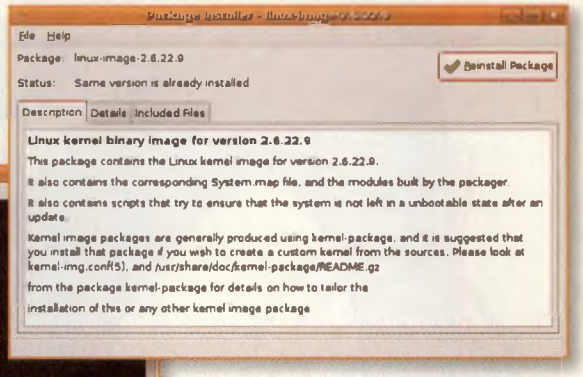


The kernel compiling... eye candy for the geek.

You'll need to re-install video drivers such as Nvidia's proprietary binaries.

Even simple changes yield a smaller, more-efficient kernel.




File Help
Package: linux-image-2.6.22.9
Status: Same version is already installed
Reinstall Package
Description
Details
Included Files
Linux kernel binary image for version 2.6.22.9
This package contains the Linux kernel image for version 2.6.22.9.
It also contains the corresponding System.map file, and the modules built by the packager.
It also contains scripts that try to ensure that the system is not left in a unbootable state after an update.
Kernel image packages are generally produced using kernel-package, and it is suggested that you install that package if you wish to create a custom kernel from the sources. Please look at kernel-img.conf(5), and /usr/share/doc/kernel-package/README.gz
from the package kernel-package for details on how to tailor the
installation of this or any other kernel image package

The resultant kernel package created by the compiling scripts.

effective changes, the General Setup and Processor Type sections are all you need.

For example, under Processor Type set the family to 'AMD64' or 'Core 2 Duo' if these match your CPU. Chances are you don't need 'NUMA', so disable this as well as 'kexec system call', 'kernel crash dumps', and 'relocatable kernel'. Disable MCE for whichever CPU you don't have, and if you don't have multiple cores or CPUs disable SMP. And for a more responsive system, set the 'Timer Frequency' to 1000HZ.

If you're not on a laptop then under Power Management, disable 'CPU Frequency scaling' and 'Software Suspend' as well as 'PCCard support' under Bus Options.

You can be very specific on the features and support you need, or very general. Keep exploring and don't forget you can select 'Help' for any option to learn more about what it does. If unsure, leave it on its current setting.

Generally, you won't need to touch it — it's already quite modular and specific to Ubuntu's setup or Device Drivers unless you're comfortable knowing your exact hardware configuration.

When you've finished playing, select 'Exit' and say Yes to saving your kernel configuration.

COMPILING THE KERNEL

Now you're ready to compile it. Type the following:

```
make-kpkg clean
```

IN THIS INSTALMENT WE'LL GO RIGHT INTO THE DEEP END — COMPILING YOUR OWN KERNEL

```
make-kpkg --initrd --
revision=custom kernel_image
kernel_headers modules_image
```

Now go and make a cup of tea, or buy doughnuts or something as this could take a while depending on your processor speed. When it's finished, all that's left to do is install your shiny new kernel:

```
cd ..
dpkg -i linux*.deb
```

Your GRUB boot menu will be automatically updated for you, including preserving your original kernel — so don't be afraid to experiment with your kernel, as you can always boot the original Ubuntu one if you run into trouble.

And that's it; not too hard now is it? Well, almost — there is one exception to this.

VIDEO DRIVERS

Because proprietary video drivers such as Nvidia's aren't open source, they can't be included with X11 or the kernel. When you reboot you'll find X won't start because it can't find the Nvidia binary module to match your kernel. The solution, fortunately, is simple — re-install the drivers.

However, the Nvidia binaries from Ubuntu's repositories are for its original kernel, so you'll need to grab the official Linux installer direct from Nvidia for your CPU architecture. This means you'll want to download them while booting the original Ubuntu kernel so you have access to X and Firefox. You can actually browse sites from the command line with Links:

```
apt-get install links
```

But this isn't as easy as using a GUI, of course.

Download the drivers to somewhere simple like /tmp, and then, once you've booted your new kernel, you can install them like so:

```
su -s
cd /tmp
sh NVIDIA-Linux-x86_64-
100.14.19-pkg2.run
```

Just type 'Nvidia' and press Tab to let the command line find the file for you. Follow the installer's instructions and the module will be installed. Finally, thanks to some of 7.10's new functionality you need to edit a file — type:

```
nano -w /etc/modprobe.d/lrm-
video
```

Now comment out (add '#' in front) the 'install nvidia' line and press Ctrl+X to quit and save. When you reboot, X will be returned to its former glory. It's somewhat of a hassle, but that's the price to pay for proprietary binary drivers.

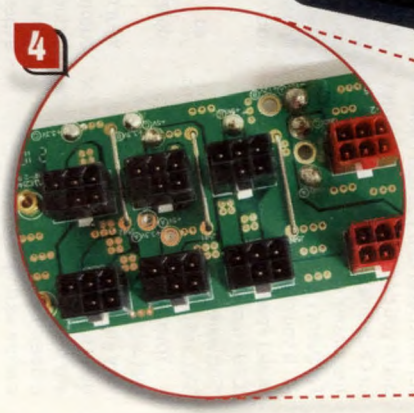
WHICH KERNEL SOURCE?

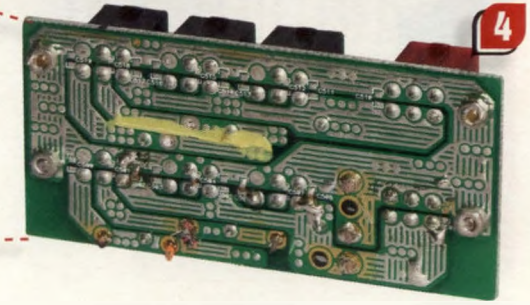
While you *can* go and grab the latest release (2.26.23 at the time of writing), doing so is a little more complicated than using Ubuntu's kernel source for two reasons:
1. Ubuntu's source tree has patches for hardware support, which you may need, and 2. You'll need to copy across the .config file from the current Ubuntu kernel to the new one, which is a few extra steps we don't have room to go into in this issue. The Ubuntu 7.10 2.6.22-based kernel is so new there's no reason not to use it, for the moment at least.

Enermax 1000-watt Galaxy PSU

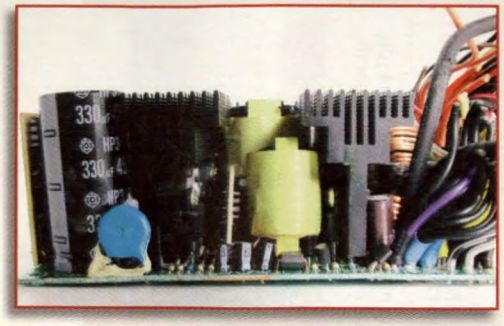
This month, we're exploding the Enermax 1000-watt Galaxy power supply.

1. Fan guard for 13.5cm axial fan.
2. Top of the case.
3. 13.5cm axial fan.
4. Board for modular cables sockets.
5. Active PFC/primary AC side control card.
6. Bottom of the case.
7. 8cm axial fan.
8. Fan guard for 8cm axial fan.

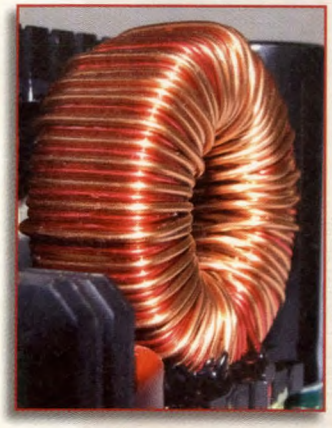




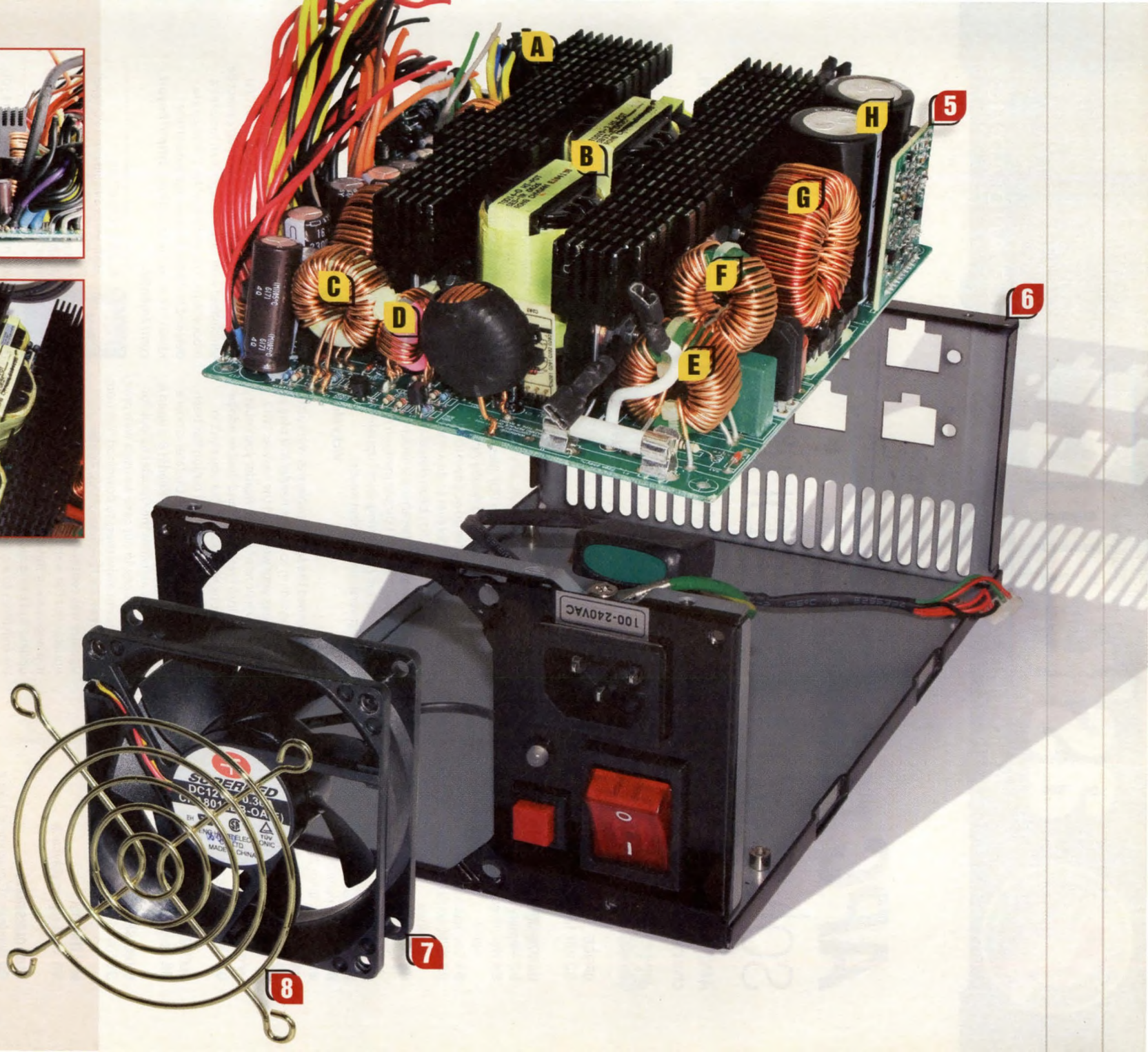
- A Anodized alluminium heat sink with array setting.
- B Two transformers with 1200W output capacity.
- C 11 x 105°c secondary capacitors.
- D Double magnetic amplifiers.
- E 2nd level EMI solution by choice filter.
- F 3rd level EMI solution by choice filter & X capacitor.
- G Massive PFC choke with dual current sensors.
- H Dual Hitachi capacitors.



Top view of the PSU, showing the transformers beside the heat sink.



PFC choke with dual current sensors.



ask apc

ASK THE APC TRIBE FOR IT HELP AND ADVICE

HARDWARE | WINDOWS | SECURITY | LINUX

APC readers solve your computing problems

***APC* readers are Australia's single largest group of tech experts. If you have a technical problem, chances are an *APC* reader can solve it.**

QUESTIONS ANSWERED

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A question about Adobe Acrobat's slowing of a PC after PDF files are viewed has set off a torrent of answers from our readers this month.

OFFICE

PDF FILES SLOW DOWN MY PC

Q I have a problem with PDF files. Once I open a PDF file using Adobe Acrobat Reader 8, the computer slows down to a standstill and it takes forever to do anything, even after the PDF file has been closed and is not in use. Does anyone have an explanation as to why this is happening? I should mention that this only started happening since I updated to the latest version of Acrobat Reader.

Vicky Mcleish

A1 We had the same problem at work after upgrading to Adobe Reader 8. It plagued us for weeks until we found the answer. With previous versions of Adobe Reader you could always go into Preferences and disable Adobe Reader to look for Updates, but you can't in Adobe Reader 8 because that option has been removed. Instead, the Adobe Updater is now a separate install. Once Adobe Reader 8 is open it automatically activates the Updater to look for any new updates. In our case we use a web proxy that does not allow users to download files from the internet. And because of this, Adobe Updater was continually trying to download updates but the web proxy was always blocking it. It was stuck in this endless loop of trying to update and being blocked, thus slowing down the machines to a crawl. This could also be a problem if you have an older PC or are still using a dialup internet connection. To resolve the issue you have to stop Adobe Reader 8 from searching for updates. To do this you need to navigate to: C:\Program Files\Common Files\Adobe\Updater5 and delete the adobeupdater.exe file.

Basically, if the Adobe Updater file isn't there, then it'll never run when you open Adobe Reader 8 — and problem solved!

BY JIM DUMAY
Jim is a network administrator for Kempsey Shire Council. He enjoys repairing broken PCs, building new PCs and video editing.

A2 The reason your PC is so slow after opening a PDF document is that AdobeUpdater.exe runs and causes 100% CPU usage. Unfortunately, this application cannot be terminated with Task Manager, so it requires a reboot to fix. The steps to solve this issue are detailed in Adobe Knowledge Base article KB401737. It can be found here: **http://tinyurl.com/2m8q92.**

BY ADAM ANDERSON
Adam works with industrial PC-based satellite tracking & control systems; mining electronics; and, circuit board design. He also installs cable systems and Class D, E & F networks.

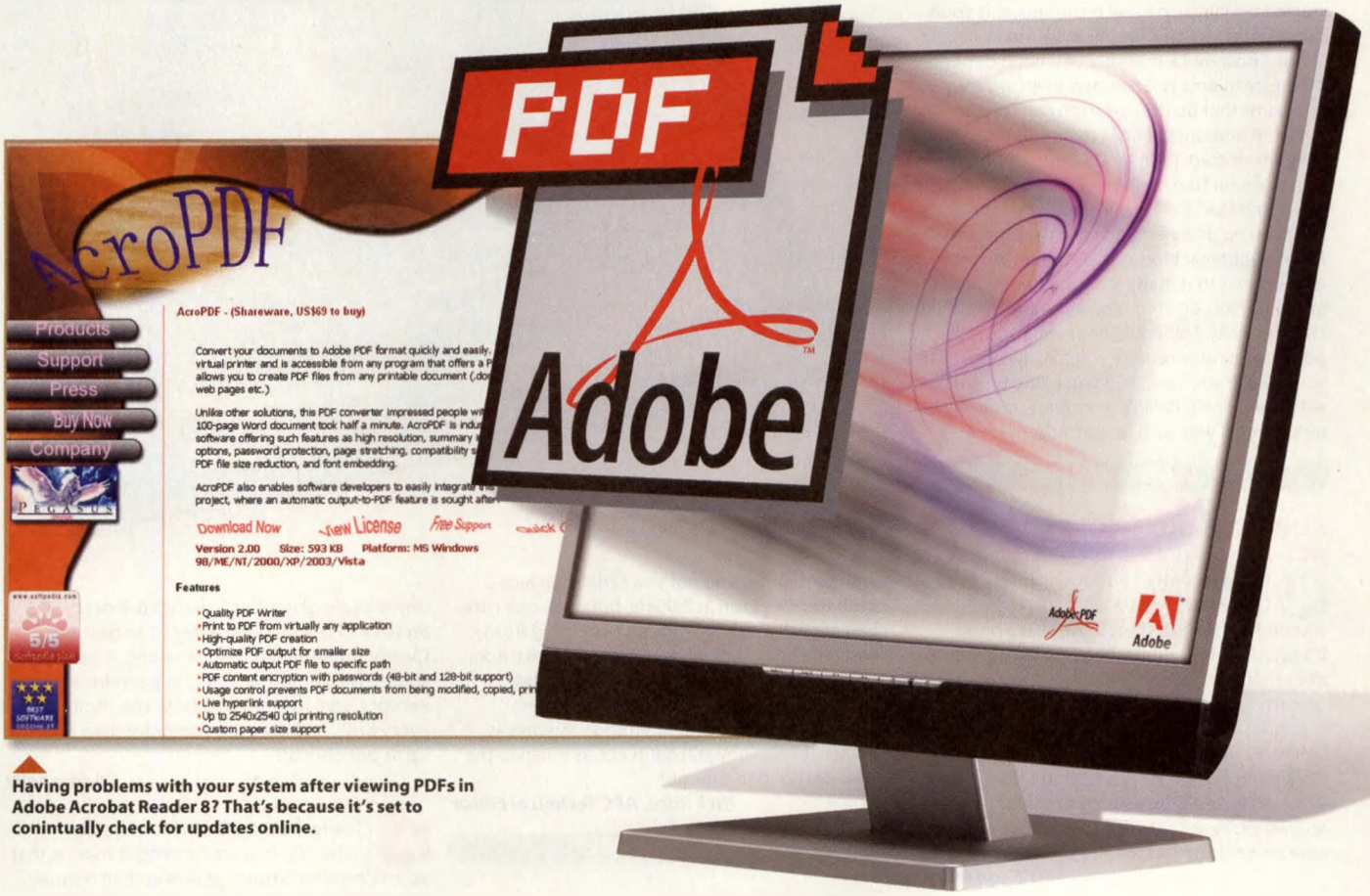
A3 Vicky, you need a KISS approach. Are you asking the right question? If you want to

WHAT'S WITH THE READER BOX?

APC will give readers whose answer is highlighted a small promotion box in which they can promote their business with a mission statement or slogan, and a URL or phone number.

YOUR NAME HERE
A brief detail about how awesome you are that you could help.
www.yourwebsite.com

askapc@acpmagazines.com.au



Having problems with your system after viewing PDFs in Adobe Acrobat Reader 8? That's because it's set to conintually check for updates online.

work for Adobe then start updating, reading troubleshooting guides, benchmarking or re-installing software. If you just want to view PDFs then uninstall Adobe Reader and use Foxit Reader: **http://tinyurl.com/h9wxd**.

BY KEITH WATSON
Keith is an IT school officer with Brisbane Catholic Education. He follows the Catholic Education motto, "Life Long, Life Giving Education".

A4 I have an answer for Vicky Mcleish, although, to be fair, she answers it herself in her question. The problem arose when she upgraded; therefore, don't upgrade. It's harder than it sounds because Acrobat 7 is nagware and will update itself every time it gets online, not unlike a Trojan in my not-so-humble opinion. The earlier versions of Acrobat still work fine. I still use version 5 with no problems; there's no bloatware; no prefetch programs that keep me waiting at start-up; no accessing the net without my permission. There are also other PDF readers that you could find by typing 'freeware' into your search engine of choice, which don't take over your system. As far as I can see, there is no legitimate reason for a PDF reader to upgrade itself, because the PDF specification has not changed. Therefore, there is no reason for it to have access to the internet. Every extra program that does have net access is an extra target for viruses, so only your browser and your security programs, firewall etc. should access the net.

BY NOEL QUINN
Noel is a treechanger who lives in a remote forest, pays 12 to 20 times what you do for bandwidth, but says he only has to put up with poisonous snakes for neighbours. He's just lucky we suppose.

A5 There is one very simple solution that I also use. Try a utility called PDF SpeedUp. I'd recommend you downgrade your Adode Acrobat reader to a version 7 and then download the utility available from **www.acropdf.com/products.html**. It allows you to pick and choose which plug-ins you wish to load or PDF SpeedUp's recommended plug-ins that optimise performance. The loading of all the plug-ins and libraries is probably the reason your computer gets huffy about it. It usually happens when using Acrobat Reader on an older computer, but I have used SpeedUp with Acrobat Reader 7 on an old PC with a marked improvement and the computer not freezing .

BY CHRISTOPHER JOHNSTONE
Christopher Johnstone is 17 and studying engineering at RMIT University.

HARDWARE

MEMORY SWEET SPOT

Q I've got a PC with 1GB of RAM, and I've heard varying reports on how much RAM Vista needs in order just to run itself. Do I need to upgrade to 2GB?

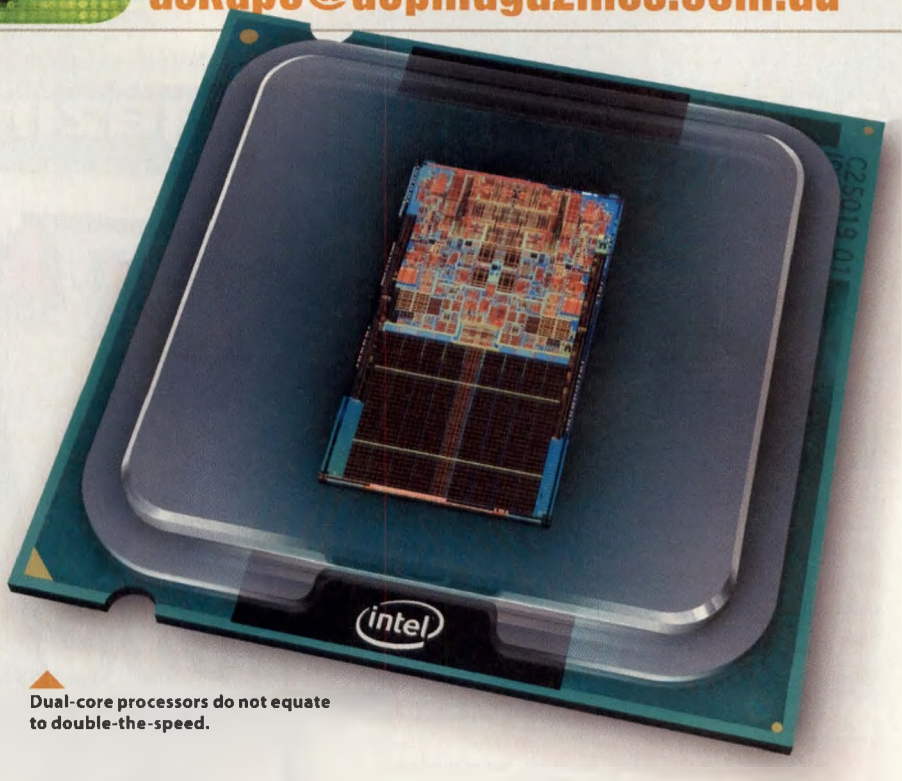
Stuart Poldo

A Reports do vary. Taking a fresh installation of a 64-bit copy of Vista, we booted it up on a machine with 2GB of RAM and ran Task Manager to see what it did. With an uptime of around two minutes (just long enough to boot up and log on), it had consumed just over 700MB of RAM. After a further 10 minutes or so,

it had fallen to 600MB (remember that it uses the page file to dump parts of memory that haven't been used for a while). However, when we started opening up a few programs, this soon pushed it above the 700MB mark again.

Just how much memory you need depends on the programs you run, and even different programs that do the same job can take up different amounts of RAM depending on how they are written. With an OS that gobbles up so much of your free memory, 2GB is really the sweet spot for Windows Vista.

If you do decide to increase the amount of RAM in your machine, one problem you may encounter is that many manufacturers fill all the available slots on your motherboard with cheaper RAM. This could limit your upgrade potential, or may require you to buy more than you need. If you have 1GB you could be stuck with four 256MB DIMMs, meaning some will be redundant if you wish to upgrade.



Dual-core processors do not equate to double-the-speed.

HARDWARE

HOW DOES DUAL-CORE ACTUALLY WORK?

Q Quite recently, I bought an Intel Core 2 Duo E4400 (that's 2.0GHz). I'm just wanting to clear up something that's been bugging me for a while: because its 'dual-core', does that mean it's actually two dies and 2.0GHz on each, which means 4.0GHz? I would have thought so, because I also have a very slow Celeron 2.0GHz, and there is a marked difference, but if it is so, why don't they just say 4.0GHz?! It would be a much simpler method and would save confusion over single and dual-core processors. Please clarify!

Sean Murphy

A Dual-core processors run at the speed advertised, because they run in parallel with each other and not as a serial 'machine'. Both the cores run at 2.0GHz, but once one core is at capacity, the second can't continue from it and take on part of its load. Think of two trucks driving next to each other. Both are doing 100km/hour, but even though there's two, nobody would say that anything's moving at 200km/hour. They still get twice as much to the final destination though!

Nick Race, APC Technical Editor

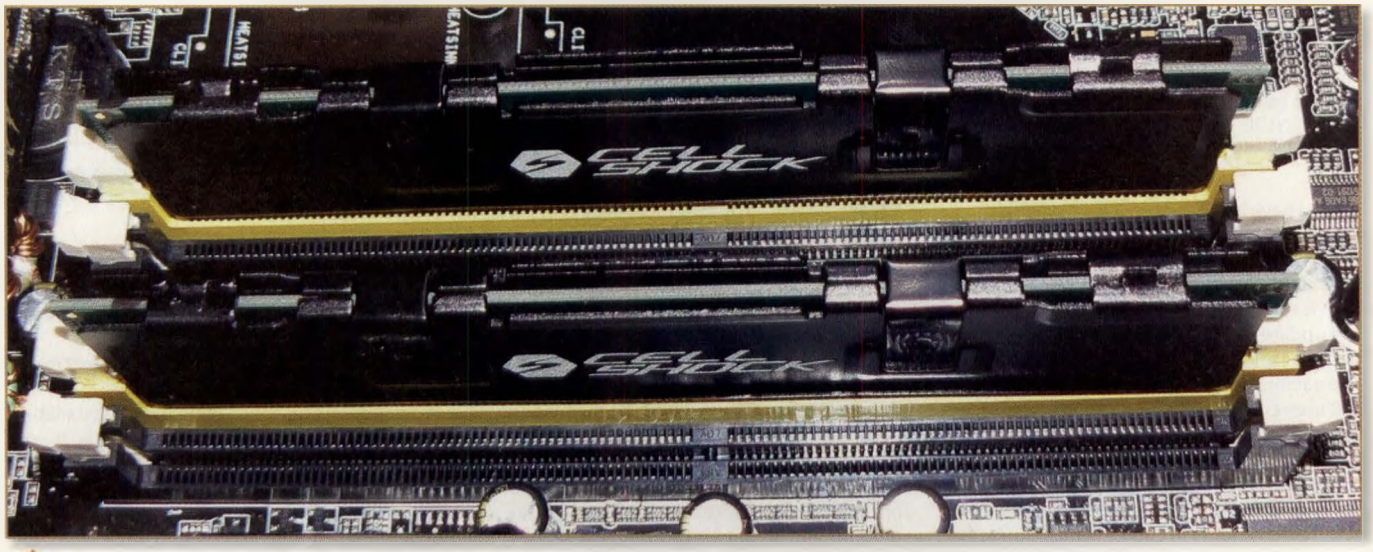
HARDWARE

CONFUSED BIOS

Q My computer never reboots without giving me the following message: "CPU is unworkable or has been changed. Please recheck CPU Soft Menu. Press F1 to continue." Clearly something has gone wrong. A power surge? The computer works as per normal except I have to hit F1 to reboot the computer every time, and then the computer then boots up as per normal?

Adam Kelly

A Clearly the BIOS is a bit confused as to the CPU you are running. It may be that your computer is running slower than normal because the BIOS is picking a slow, 'safe' CPU speed. If you change the settings in the BIOS CPU Soft Menu to match your CPU and save,



It's hard to determine just how much RAM Vista needs when reports seem to vary. Ultimately it depends on how many programs you're running at once.

does the message still appear? If so, then try replacing the CMOS battery. If the problem still persists, perhaps the BIOS itself has been affected by the suspected power surge.

BY GARETH OAKES
Gareth is a computer veteran, having started programming PCs at age 9. He currently works as an enterprise application engineer for major US software vendor PTC.

HARDWARE

KVM SWITCHES FOR HIGH-RESOLUTION MONITORS

Q I have a wide-screen monitor running at 1,680 x 1,050. My old (VGA) KVM switch simply cannot handle it, although I'm at a loss as to why — surely the monitor signal should just get passed through as is? I have looked at DVI KVM switches on the net and it seems to be very hard to find one that handles resolutions above 1,280 x 1,024.

Peter Faulks

A You should check out the ATEN switches, in particular, the Aten CS-62D Petite 2 Port PS2 DVI KVM Switch. They are capable of displaying up to 1,920 x 1,200 @ 60Hz. They have a small push button controller for your desktop that allows switching between the two computers. They also do audio as well. Try PC Case Gear at **http://tinyurl.com/yr64t2** or i-Tech at **http://tinyurl.com/25mfaf**. There are a number of different models to choose from if the CS-62D isn't exactly what you want.

Max Schafer

HARDWARE

WHEN'S A GOOD TIME TO BUY HARDWARE?

Q After reading in your magazine about all the radical upgrades that are going to occur, would it be worthwhile for me to buy a new computer now, or should I wait until next year? I'm thinking about getting a PC primarily for gaming so probably, 2GB RAM, 8800 GTS. Thanks for your help.

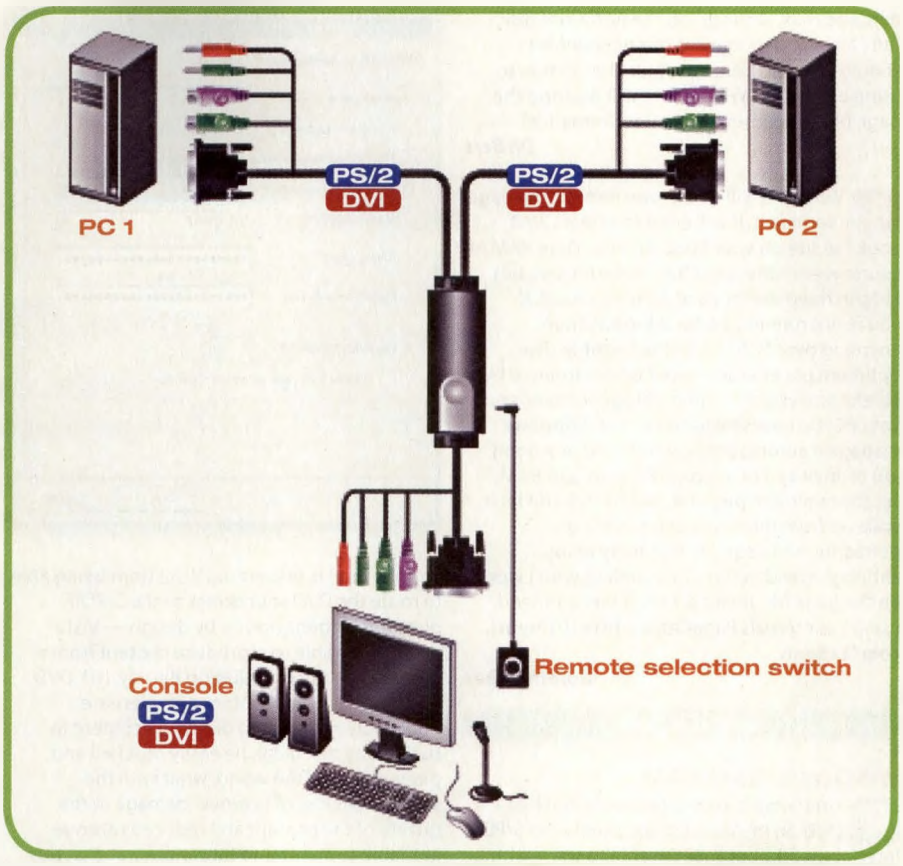
David Lee

A There are two points here that always suggest you buy now. New processors and technology are always being released. If you're waiting for the next big thing, there's always another next best thing coming a few months down the track.

The second is that, although there are new architectures being released, they're going to suffer (some more than others) with the typical version 1.0 blues.

When a new tech comes out, then it means the technology it's replacing is as good as it's going to get. Choosing between a new, untested technology and one at the peak of its performance and stability is not a tough choice. That said, invest in some good quality RAM and a graphics card that's one or two steps down from the flagship, and you're not going to go wrong.

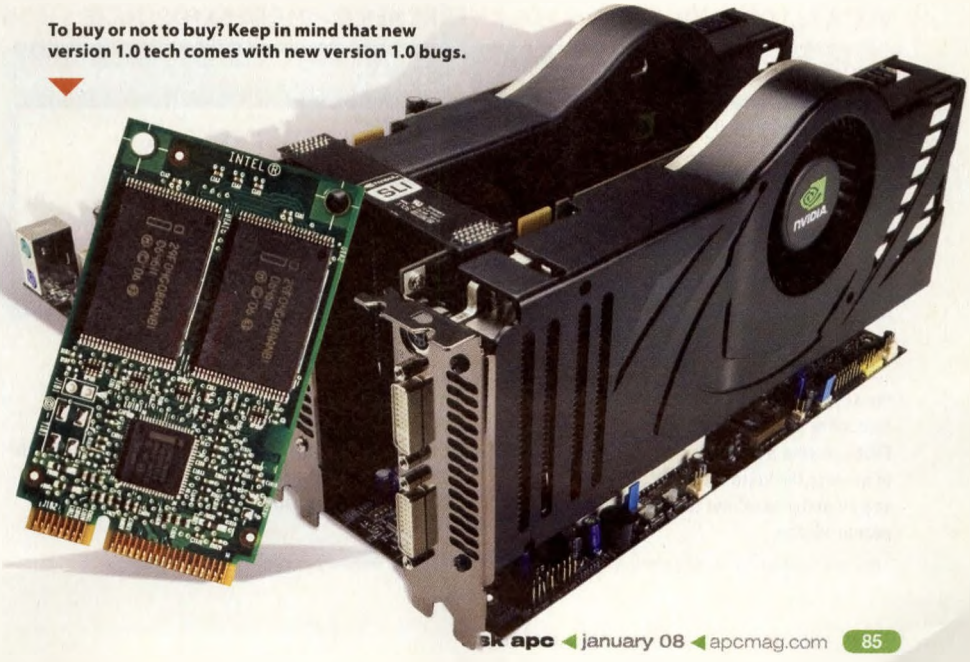
Nick Race, APC Technical Editor



WINDOWS

DELETING PAGE FILE

Q I am running Vista Ultimate with 2GB RAM and 1GB TurboBoost on a Laptop (ASUS F3SV AK136G). I want to increase the battery life and reduce boot and restart times. I am intending to manually set a page file size (same



To buy or not to buy? Keep in mind that new version 1.0 tech comes with new version 1.0 bugs.

min. and max. settings) on the non-boot disk, but I am wondering what size of pagefile I should set, or if there are other alternatives to using a pagefile? What effect will deleting the page file altogether have on performance?

Dil Bert

A Windows will not let you remove the page file. In fact, it will enforce at least 2MB page file size on your boot volume. More RAM of course means the page file will be hit less, but keep in mind the limits of Windows itself. If you're not running 64-bit Windows then anything over 3GB will be inaccessible. The optimum pagefile size could be determined by careful analysis of common usage scenarios on your PC. Otherwise you can just let Windows manage it automatically, which it does a good job of anyway. For a typical PC with 2GB RAM, set the minimum page file size to 1GB and let it scale up from there if needed. Having a defragmented page file definitely helps, although standard Windows defrag won't work on the page file. Instead, I would recommend using SysInternals PageDefrag: **http://tinyurl.com/3x5enh**.

Gareth Oakes

WINDOWS

WINDOWS VISTA DRM

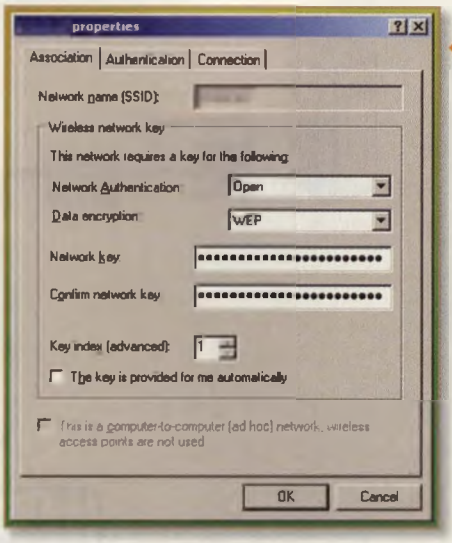
Q I'm trying to record the soundtrack of a DVD on my Vista laptop. I know the S/PDIF interface works because I'm able to use it with my audio programs. How come I can't use it when I play DVDs?

Wade Kimball

A A Digital Rights Management (DRM) policy created by the content owner (the copyright holder, usually the content producer or publisher) is preventing Vista from being able to route the DVD soundtrack to the S/PDIF output. This behaviour is by design — Vista needs to be able to reproduce content from a number of sources including Blu-ray, HD-DVD and normal DVDs. Content providers are noticeably reluctant to distribute content in such a way that it can be easily hijacked and pirated around the world, what with the subsequent loss of revenue, damage to the quality of the content and reduced revenue available to invest into future content that this would mean. Rightly or wrongly, policies are distributed along with the content media, which dictate the number of options or features that are possible when using or viewing that content. This might mean restricting the resolution at which the content may be viewed, restricting the territories in which the content may be used (DVD Region Codes) and reducing, by disabling parts of your hardware, the possibility of that content being copied to other media.

This isn't a new development: Microsoft has always been keen to point out that the ability to restrict S/PDIF by policy has been an option to content providers since Windows ME and that Windows XP supports advanced DRM. What we are seeing at the moment is the content providers catching up with the options that have been made available to them. Restricting your ability to use your computer and making the content provider more comfortable about allowing you to view their product on your equipment simply means that everyone is happy. Or does it?

Vista DRM is currently a hotly debated issue. Microsoft has taken a hands-up stance, maintaining that the decisions to include these policies aren't made by them and that if they didn't create equipment with the ability to handle these policies, the content simply wouldn't run at all. They also point out that other equipment — DVD players, phones, etc. — and other operating systems also have to incorporate this kind of feature. It's just that because they are the producers of the world's most-used desktop operating system, they are getting the heat for their cooperation with DRM policies at the moment.



Many of the Wireless routers around are still limited to WEP keys. If yours is one of them you should use a long key for more efficency.

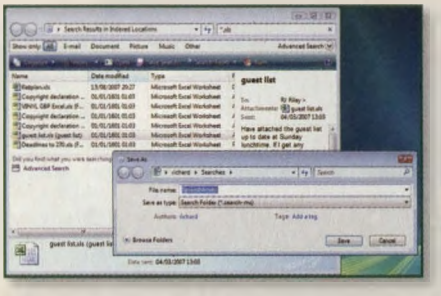
NETWORKING

HOW MANY CONNECTIONS?

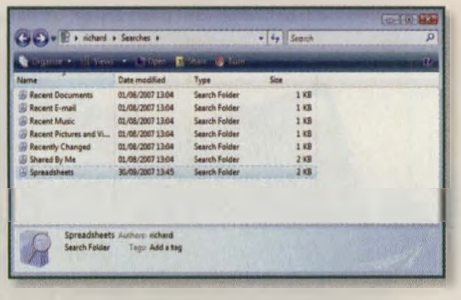
Q How can I tell what applications are connected to the internet on my PC,

TIP... VISTA'S SEARCH CAPABILITIES

VISTA ALLOWS YOU TO SAVE YOUR SEARCHES TO THE DESKTOP: HERE'S HOW TO DO IT.

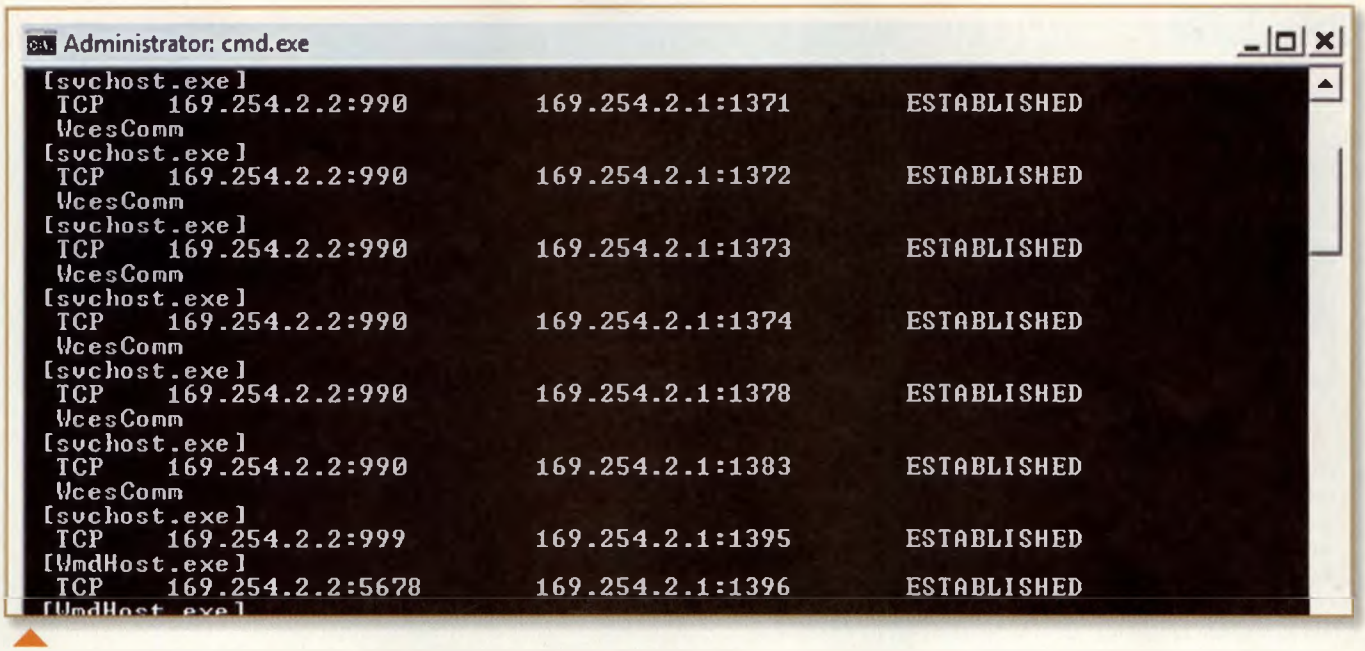


1 Windows Vista searching is a powerful and useful tool, and it's a significant upgrade from the XP search tool. Searching by document type, content or tag improves workflow when using Vista. Firstly, create a new search in Vista, use the mouse to move to the Vista start button and enter your search and press Enter to see the items in the search window.



2 Select a view from the menu to sort the search items as lists or thumbnails. Alternatively, use the organise menu to enable preview and details panes. As we showed in a tip in a previous issue, you can also choose to stack your files by dierent criteria, by clicking the arrow to the right of the column header.

3 Click the 'Save Search' button and enter a name. By default, the search is saved into your saved searches folder. Open this in your personal folder tree to see your saved search and other searches. Drag or create desktop shortcuts to your favourite searches. You can now use these as virtual folders. This is useful if you work with files stored in different locations.



How many connections? Netstat will show all connections to the internet from your PC.

and how can I tell if all the applications that are connected should be connected?

Rachel Lawrence

A Your PC could have 10 or 20 connections to the internet, all going at the same time. Tabbed browsers, for instance, can accommodate many pages, each with adverts or other devices that are communicating with the web. Before tabbed browsing, each window had to be opened in a different instance of the browser, so having multiple windows open took up lots of space on the desktop and was unpopular; tabbed browsing makes multiple connections much easier. Add to that any Instant Messaging clients, peer-sharing clients, toolbars and games that may also be running.

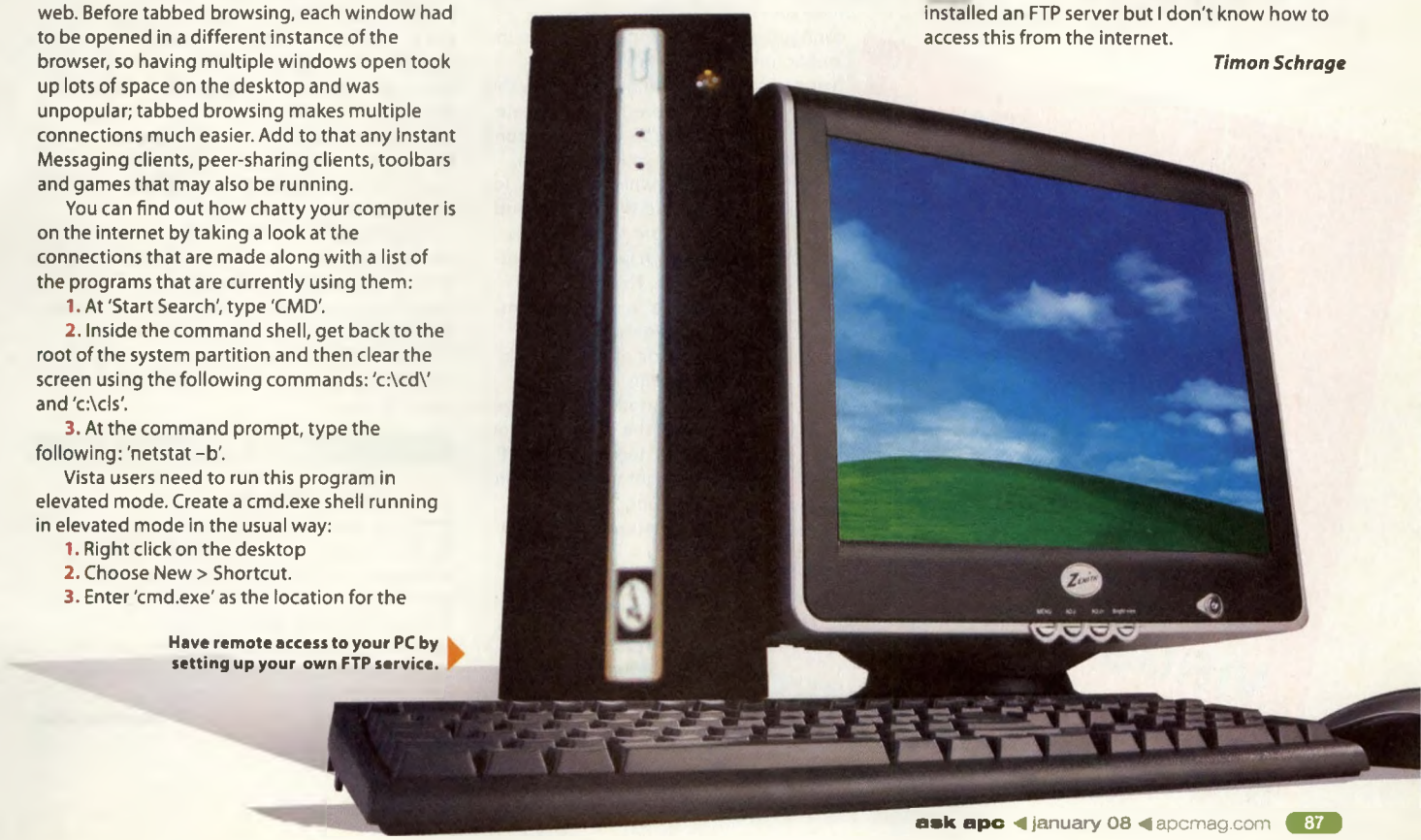
You can find out how chatty your computer is on the internet by taking a look at the connections that are made along with a list of the programs that are currently using them:

1. At 'Start Search', type 'CMD'.
2. Inside the command shell, get back to the root of the system partition and then clear the screen using the following commands: 'c:\cd\' and 'c:\cls'.
3. At the command prompt, type the following: 'netstat -b'.

Vista users need to run this program in elevated mode. Create a cmd.exe shell running in elevated mode in the usual way:

1. Right click on the desktop
2. Choose New > Shortcut.
3. Enter 'cmd.exe' as the location for the shortcut and give it a name if you wish.
4. Right-click over the new shortcut and choose 'Properties' from the menu.
5. In the 'Shortcut' tab, choose 'Advanced'.
6. Check the option to 'Run as Administrator'.

'Netstat -b' reveals the active processes with current connections to the LAN and ultimately the WAN. Many processes, such as netbios and DNS are wrapped up inside svchost.exe. You'll see multiple instances of this — look for processes with names you don't recognise, and if necessary use the task manager.



Have remote access to your PC by setting up your own FTP service.

NETWORKING

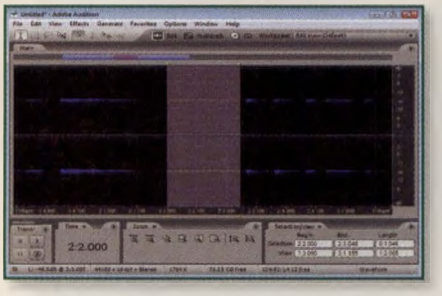
HOME FTP SERVER

Q I want to download files from my PC at home when I'm at another location. I've installed an FTP server but I don't know how to access this from the internet.

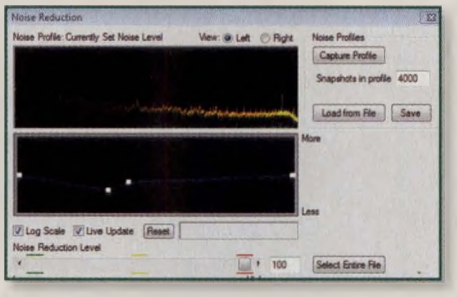
Timon Schrage

TIP... BACKGROUND NOISE

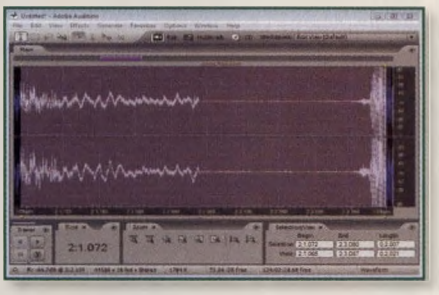
ELIMINATE THE BACKGROUND NOISE CAUSED BY YOUR COMPUTER WHILE RECORDING AUDIO



1 If you record live audio on a PC, the noise from the PC's fans will create an undesirable background effect. This can be removed with Adobe Audition 2.0 (available as a 30-day trial). To begin, load the audio track into the Edit View. Normalise the recording to bring the amplitudes to their highest relative point (Effects > Amplitude > Normalise).



2 Drag-select a portion of the audio during a pause in the speech. Choose, if you can, a section of the audio track that is particularly noisy. Use the zoom controls to zoom in on a section of the waveform if necessary. From the menu bar, choose Effects > Restoration > Noise Reduction and capture the noise parole of the selected audio.



3 The spectral parole of the selected range is now stored in a profile. Noise is reduced by subtracting the profile values from the entire range of frequencies in the waveform. You can apply this over the whole waveform by choosing 'Select Entire Wave'. The cleaned up audio may now be amplified further to make it easier to listen to.

A The IP address of your home PC is the key to remote access. You'll need to discover from your ISP whether your home IP address is 'dynamic' or 'static'. The difference is that static IP addresses never change, while dynamic IP addresses can change daily or weekly. Many service providers have different types of plans depending on your usage. For instance, most major ISPs don't expect consumers to want to be proactive on the internet. So, their packages are tailored for maximum download speeds and minimum contribution; these packages are always specified with dynamic IP addresses.

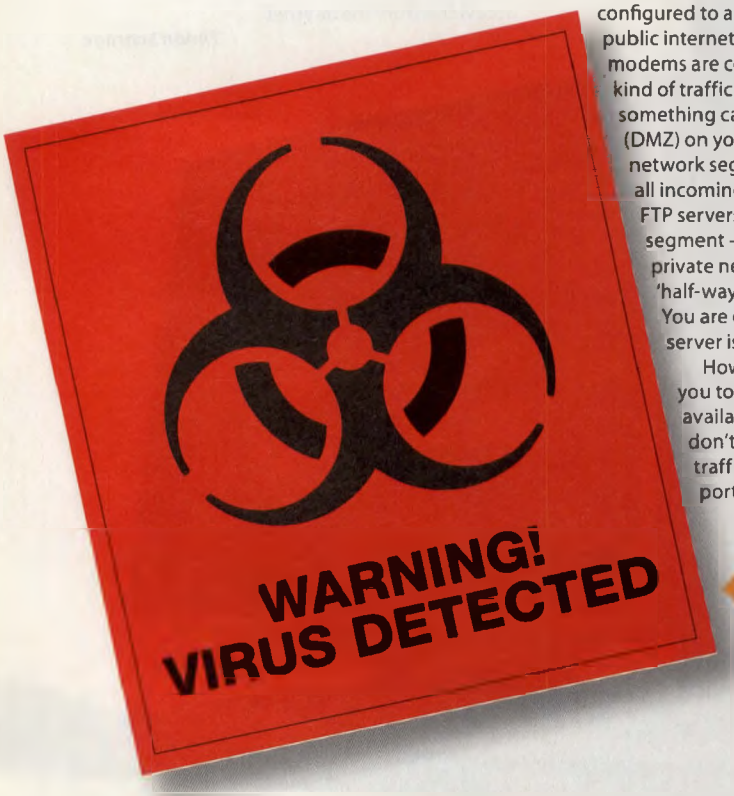
But some ISPs will provide a static IP address and a reasonable upload speed, so you can serve files from your home PC. Static IPs are limited in number — the result of this is the extra price you pay. To enable FTP service from your home you'll need some FTP software. I use Cerberus (**www.cerberusftp.com**) because it's free and fast.

With the FTP software installed you need to make sure that your DSL router is configured to allow connections from the public internet. By default, all DSL modems are configured not to allow this kind of traffic. Best practice is to create something called a 'de-militarised zone' (DMZ) on your network. A DMZ is a network segment which is a target for all incoming traffic. Web servers and FTP servers, etc. are placed on this segment — which isn't inside your private network. This is a kind of 'half-way house' in security terms. You are offering data, but the server is outside of the network.

However, this also requires you to have another PC or server available for this purpose. If you don't, you'll need to route FTP traffic straight to your PC using port mapping.

Port mapping is used for filtering and routing data arriving from the public side of the network to specific hosts inside the network. This is done by filtering data using something called 'port information'. IP data is routed using logical ports — traffic intended for different purposes have different ports. FTP client traffic is always intended for Port 21. To create port mapping for this port, you must configure your router to map all Port 21 traffic arriving on the public side of your network to your FTP host inside your network — but to block all other traffic. It may also be necessary to create a route between Port 20 on your private network to the public network, although on a NAT router this may not be a requirement. Fortunately, port mapping is done by exception. All ports are closed unless opened so it's not necessary to manually block all 65,535 logical holes in your network.

Assuming that you have a dynamic IP address, you now need to sign up with one of the many dynamic DNS host services. These track the public IP address of your router for you and map it to an unchanging host name. Your FTP connection is then made to that host name, which routes your request to your router and your FTP server.



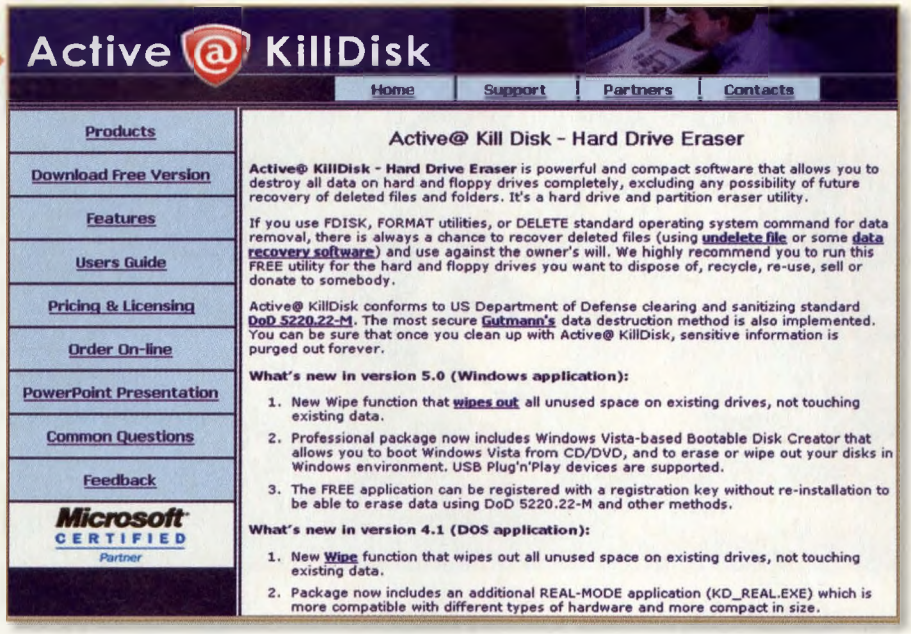
It's a good idea to have a second anti virus protecting your network, not all programs detect all internet nasties.

SECURITY

SPREADING VIRUSES

Q My family has four computers on a LAN network, each protected with antivirus/antispyware software. However, I am worried that if one computer gets infected with a virus, it will spread to the other computers on the network. Could this actually happen, and if it could, is there a solution or software package that could prevent it?

Matthew Wun


Active@ KillDisk
Home
Support
Partners
Contacts
Products
Download Free Version
Features
Users Guide
Pricing & Licensing
Order On-line
PowerPoint Presentation
Common Questions
Feedback
Microsoft CERTIFIED Partner
Active@ Kill Disk - Hard Drive Eraser
Active@ KillDisk - Hard Drive Eraser is powerful and compact software that allows you to destroy all data on hard and floppy drives completely, excluding any possibility of future recovery of deleted files and folders. It's a hard drive and partition eraser utility.
If you use FDISK, FORMAT utilities, or DELETE standard operating system command for data removal, there is always a chance to recover deleted files (using undelete file or some data recovery software) and use against the owner's will. We highly recommend you to run this FREE utility for the hard and floppy drives you want to dispose of, recycle, re-use, sell or donate to somebody.
Active@ KillDisk conforms to US Department of Defense clearing and sanitizing standard DoD 5220.22-M. The most secure Gutmann's data destruction method is also implemented. You can be sure that once you clean up with Active@ KillDisk, sensitive information is purged out forever.
What's new in version 5.0 (Windows application):
1. New Wipe function that wipes out all unused space on existing drives, not touching existing data.
2. Professional package now includes Windows Vista-based Bootable Disk Creator that allows you to boot Windows Vista from CD/DVD, and to erase or wipe out your disks in Windows environment. USB Plug'n'Play devices are supported.
3. The FREE application can be registered with a registration key without re-installation to be able to erase data using DoD 5220.22-M and other methods.
What's new in version 4.1 (DOS application):
1. New Wipe function that wipes out all unused space on existing drives, not touching existing data.
2. Package now includes an additional REAL-MODE application (KD_REAL.EXE) which is more compatible with different types of hardware and more compact in size.

Erase your 'national secrets' with this military-standard in disk erasure.

A If all of your computers had the same antivirus software, had identical virus databases, you had all computers configured for file sharing *and* a virus hit a main file-sharing PC, then yes, a virus spread could happen. But the likelihood of it if all computers and the router were kept up to date is extremely low. One way of reducing the risk is to use a second antivirus program, like ClamWin Portable, to scan all of your PCs. Depending on the antivirus package you have, it may not detect all types of viruses, so a scan from second software cannot hurt.

James Harris

STORAGE

SHREDDING YOUR DATA

Q My company has a lot of PCs we wish to recycle but are worried about the sensitive data on them. Can you recommend something to destroy data permanently?

Andrew Morrish

A Simply emptying your recycle bin or formatting your drive will not erase its data. Even drive sectors that are overwritten with random patterns of zeros and ones can be recovered by forensic tools. Data needs to be overwritten multiple times. Secure file shredding programs exist that will overwrite every byte of the drive according to US military 5220.22-M standards. One popular program is Active@ Killdisk (**www.killdisk.com**) which allows data erasing with military standards.

If you are truly concerned, nothing can beat causing physical damage to the disk. The military uses physical shredders to completely tear up the drive. However, these tools aren't feasible for the home user, or very green.

MULTIMEDIA

MULTI-REGION PLAYBACK

Q I have several DVD discs from various regions, including Britain, US and Australia. I do have a multi-region DVD player, but sometimes I want to play these on my PC. However, I have now changed region the maximum number of times and my DVD drive will only play region 1 discs.

Ricky Carter

A While there are tools available to restore your five region changes, or even make your drive region free (as long as you have a newer RPC-2 drive), this involves modifying your firmware. A much simpler, and foolproof, solution is to

TIP... STORAGE

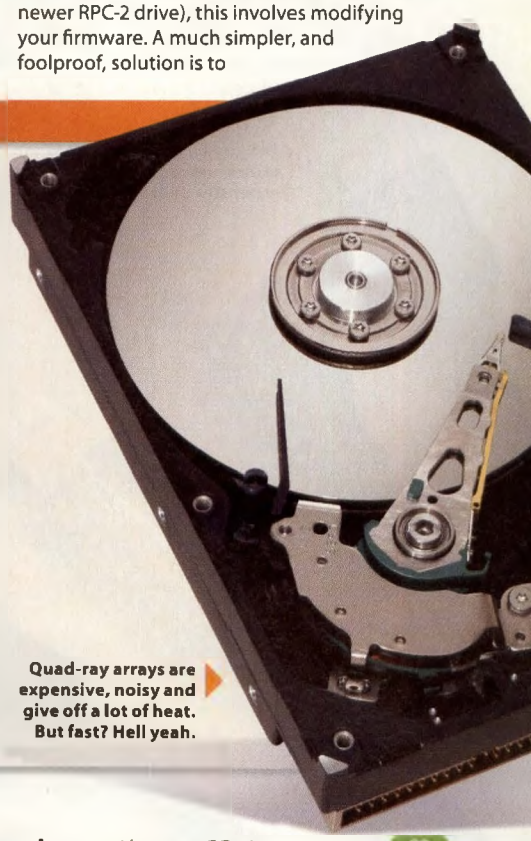
IS THERE A BENEFIT TO HAVING MORE THAN TWO DISKS IN A RAID ARRAY?

If people go for a RAID 0 setup, they usually settle for two similar drives that are striped together. The performance benefit from this is immense, since when a file is written to the array, half the data goes on the first drive, while the other half is written to the second drive simultaneously. You also get every available gigabyte of space, unlike with a RAID 1 mirror. A major downside is cost; not only do you need two disks, doubling the price per gigabyte, but you may need to upgrade your PSU and maybe buy a standalone RAID controller. Another serious disadvantage is that a problem on either disk will destroy all the data in the array.

But throwing caution to the wind, it's entirely feasible to set up RAID for use with four or even more disks. Using a stripe as before, performance can approach four times that of a single drive, when transferring larger files. Of course, if one drive fails all the data will be lost, but the risk of hard drive failure is sometimes overstated, they are often quite resilient. Our advice is always to keep important files backed up, but this is true no matter if you use one drive or four.

RAID 5 is a more fault tolerant choice for four disks. Using a clever algorithm, some of the space on the drives is taken up by parity files. If one drive fails, then the remaining parity data (which is a mathematical function of all data on the array) can be combined with what's left on the remaining three drives to rebuild the fourth disk. And you still get great performance (but a big hit to your CPU if you aren't using a dedicated hardware controller).

Another problem you may want to consider is the limitation of the bus to which the array is connected. PCI controller cards will be limited by this really ancient, half-duplex technology. A better solution may be a PCI Express controller, such as the Areca ARC-1210. One of these, with four 10,000 RPM Western Digital Raptors included, would make a fantastic basis and a great choice for a high-performance workstation.



Quad-ray arrays are expensive, noisy and give off a lot of heat. But fast? Hell yeah.

Instead of having several players, the VLC media player has the benefit that it will play DVD's from any region.

download the VLC media player from **www.videolan.org/vlc**. This is an advanced, region free, freeware media player. Just use VLC to play your DVDs in future, instead of your other player.

PAST ISSUES

Q Windows XP machine is taking ages to boot — *APC* November 2007, page 84

A1 In your November edition question about slow-booting XP, you recommend clearing the contents of the prefetch folder. I have always believed this to be a myth which will in fact increase boot times. Please see: **http://tinyurl.com/yrxo9**. Here we are told: "Never clean this folder or disable Windows Prefetching with any 'tweaks', as you will cripple your application load times and Windows boot times by as much as 100%. The prefetch folder and layout.ini files are self-cleaning when it reaches 128 entries. No user intervention is ever necessary. Once you have confirmed it is running, leave it alone. Anyone who claims otherwise does not understand how Windows XP Prefetching works."

BY STEPHEN BUNKER
Stephen is a Research Fellow in the Department of Epidemiology & Preventive Medicine at Monash University. Computers are his hobby. He says: "I have learnt all I know by trial and error, and from reading APC."

A2 When trying to figure out what you meant by clearing out the prefetch folder, in the November issue, I came across this advice against doing that very thing: **www.edbott.com/weblog/?p=743**. If this information is correct, it might be worth noting.

Mark Sera

The jury is still out: are cheaper cables just as good as the more expensive ones?

Q Expensive vs Cheap Cables — *APC* December 2007, page 82

A1 As with most markets for products, offerings may be classified by price. In the case of HDMI cables, there is very little else to differentiate them. The cost of manufacturing a similar cable does not vary that widely, but obviously the RRP is different depending on branding.

Technically, HDMI is a digital connection — therefore, the signal is either there or not. If the HDMI cable works, you will get identical quality no matter what cable is used. For older, analogue connections, this was not always true — the quality and type of materials used in manufacture can have a small effect on the signal strength and signal-to-noise ratio. These two factors would affect the quality of the connection.

Gareth Oakes

A2 Most of the time, a cheaper cable is lower-quality, like a $20 HDMI cable from eBay (excluding the fact that it may be used) would be a standard cable, but a $130 cable from Harvey Norman could be a really high-quality one, usually gold-plated for a better signal. I currently have a gold-plated HDMI-to-DVI plug to use my TV as a monitor.

Fletcher Clark

Q Booting a PC without making changes to the disk — *APC* November 2007, page 85

A In the November edition, John Dawson wrote: "We have a PC that we need to boot without making any changes to the disk. Is this possible?" Whilst I found the answer fascinating and will now have research to keep me busy for some time, I do not think this is what John Dawson was seeking. I found a great program that may fulfil his requirements if I understand his request.

Drive vaccine from **www.drivevaccine.com** allows for a computer to be 'inoculated' from changes made during use and to be restored to the state it was in prior to being booted. All disk writes appear to succeed to the user, but upon rebooting are no longer present.

The program claims to be able to 'inoculate' against malware and malicious or careless users. I discovered that all downloads during a session when I tried it out as well as configuration changes I made had disappeared upon reboot.

Obvious uses include education institutions, internet cafes etc. Perhaps this is what he was seeking?

BY ROSS MCLEOD
Ross became interested in computers through work as an environmental health officer in local government. He enjoys reading *APC* and tries to contribute occasionally.

Ask the questions

Send your technical questions, for other expert readers to answer, to askapc@acpmagazines.com.au.

Q When using Paint in Windows Me/XP, if an image larger than the current bitmap is pasted, Paint automatically enlarges the current bitmap to accommodate the larger size of the image being pasted. How can I change it so that Paint will prompt me with: "The image in the clipboard is larger than the bitmap. Would you like the bitmap enlarged?" (Like in earlier versions of Windows, instead of automatically enlarging the bitmap?)

Bruce Pierson

Q I recently built an Ubuntu-based loungeroom PC and overall I've been very happy with it. However, there is one thing that I can do on my Windows box which I can't find an equivalent for in Ubuntu (or any Linux distro I've tried). I want to be able to display EXIF and IPTC metadata from JPG files when they are presented by the screensaver. On Windows I use a program called gPhotoShow. This is a fantastic utility which has the best dual-screen monitor features I've come across — and is the most configurable screensaver you could want. There's a free and a purchase version. See **www.gphotoshow.com**. If you haven't seen this before, do yourself a favour and check it out.

I use my loungeroom Ubuntu machine to kick in the screensaver and randomly show any of my 12,000+ digital photos. Many of these have captions and all of them have camera EXIF data which I'd like to display. I'd like to show these on a Linux-based screen saver, but I just can't find one. I've also found it surprisingly difficult to find a Linux screensaver that can parse multiple directories to get photos for the screensaver. I'm using FSpot to do this at the moment, but it is horribly slow when you ask it to discover 12,000+ photos. It takes hours to just make the list. Anyway, I'm hoping someone in the Linux community can direct me to a screensaver with equivalent or similar functionality to gPhotoShow.

Lucas Williamson

Q I have a wireless Netgear WG3113v3 card with the latest drivers and all that stuff. I am running Windows Vista Ultimate, but when I restart or turn on my computer the wireless doesn't turn on — the program won't start up. It is in my start-up folder and sometimes it will take me a good five or so restarts before it will turn on. Please can you help me?

Matthew D. Forte

Q After reading your November mag, I got up the courage to try Linux — first PCLinuxOS 2007 and next Freespire 2.0, respectively Editors Choice and Highly Recommended.

They are supposed to work straight out of the box, but I can't connect to the internet through my Netcomm NB5Plus4 modem. The modem works with Windows-based systems — it was even easier to get it working with Apple hardware!

I have searched the internet for info but have found nothing of value anywhere; even the user guide is useless. To rub salt into the wound, in one Ubuntu forum they discuss why it's so easy to set up internet connections with Linux systems! Ha!

Some help would be appreciated or my time will not be wasted on Linux anymore.

Andrew

Q I am currently using Outlook Express v6 running under Windows XP Professional to get my Hotmail emails. Invariably, I get two copies of every email in my inbox.

Help! It's driving me mad!

Les Hill

Answer the questions

If you feel you can answer one of the questions above, please send the answer to askapc@acpmagazines.com.au.

APC will give any readers whose answer is published a small promotion box in which they can promote their business with a mission statement or slogan, and a URL or phone number. Try to make the answer no longer than 200 words, but less is better. If none of our readers can offer an answer to a particular question, we will turn to our list of industry experts to provide a solution for your queries.

Building a small business network

WHAT'S COVERED

Overview
In this Masterclass, Jarrod Spiga walks you through the process of setting up a small business IT infrastructure. No IT training is assumed. At the end of the Masterclass series, you should know the fundamentals of setting up a server-based network to run any small business.

ABOUT YOUR TUTOR

Jarrod Spiga
Jarrod is an infrastructure architect and data centre engineer for Visionbytes, a company that provides digital video mining technologies and services to some of the world's largest media companies and many government departments worldwide. Jarrod also works as a technical consultant, assisting businesses during infrastructure installation and upgrade projects.

COURSE SCHEDULE

Sept '07 Analysis
Oct '07 Preparation
Nov '07 The Windows path, part 1
Dec '07 The Windows path, part 2
Jan '08 The Windows path, part 3
Feb '08 Server hardware
Mar '08 The Linux path, part 1
Apr '08 The Linux path, part 2
May '08 The Linux path, part 3
Jun '08 Mac in the mix
Jul '08 System management tools
Aug '08 Swing migrations

You might be handy with a PC, but what if you had to look after the back end of your business? How would you set up and manage the servers, the network and the server applications?

Part 5

Easing administrative effort under SBS

Now that your SBS is up and running, you can take steps to make things easier to administer, giving yourself more time to do other things.

The biggest benefit of running a server in a small business is that many resources are centralised, which makes them easier to use, manage and secure.

REMOTE ACCESS

The old adage of the 9-5 office day is gone. More and more people want flexibility in their working hours and working places in order to spend more time with family or pursue non-working activities. Not to mention that there will be times when things go wrong while you're not in the office. In both scenarios, being able to remotely access your server is a boon to your workers and administrators.

REMOTE WEB WORKPLACE

Remote Web Workplace (RWW) is set up by default. The RWW web site can be accessed from remote locations by pointing a web browser (preferably Internet Explorer) to https://<external_address_of_server>/remote. Note that the prefix of the URL is HTTPS — an SSL-encrypted session must be established to RWW in order to ensure that the data transferred between the server and your browser is not able to be intercepted.

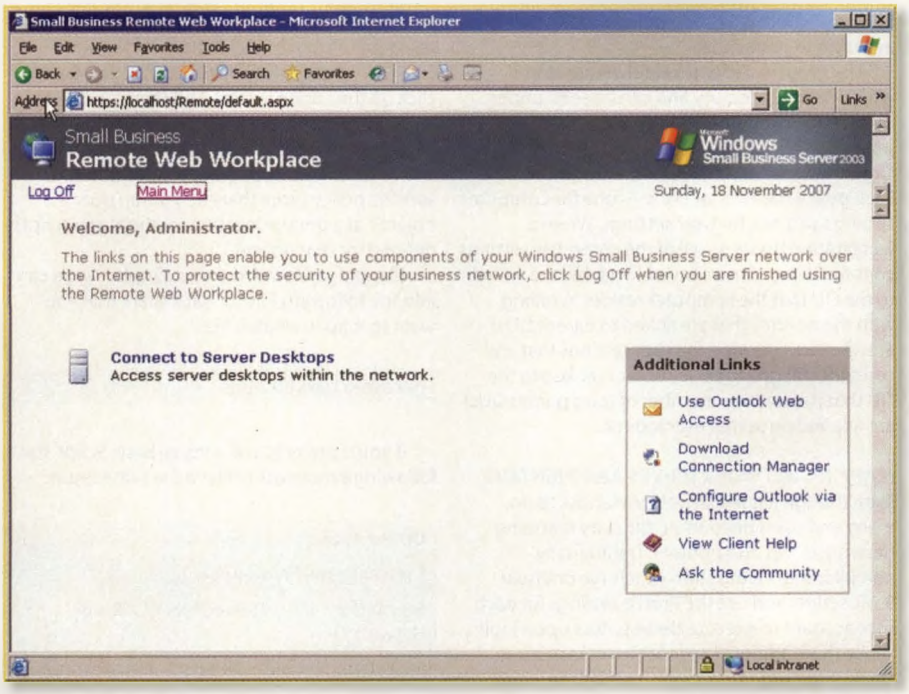
By default, all users have access to RWW. If you wish to revoke access for any given user, simply remove them from the Remote Web Workplace Users group.

VPN CONNECTIVITY

Like most tasks under SBS, there's a wizard under the SMC that can be run which takes all of the difficulty out of setting up a VPN. The Remote Access Wizard is accessible under the Internet and Email category.

In general, the first major decision that you'll need to make when setting up your VPN is how IP addresses are assigned to your remote end-points. Using DHCP is your best practice and, if you're not using SBS as a DHCP server (ie. you have an external DHCP service running), you can configure SBS to use that server to allocate addresses. Of course, there's always the option to use a static range of IP addresses for assignment.

After supplying the externally-accessible, fully-qualified domain name and completing the wizard, ensure that the users who need to be able


Small Business Remote Web Workplace - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address https://localhost/Remote/default.aspx
Go Links
Small Business
Remote Web Workplace
Windows Small Business Server 2003
Log Off
Main Menu
Sunday, 18 November 2007
Welcome, Administrator.
The links on this page enable you to use components of your Windows Small Business Server network over the Internet. To protect the security of your business network, click Log Off when you are finished using the Remote Web Workplace.
Connect to Server Desktops
Access server desktops within the network.
Additional Links
Use Outlook Web Access
Download Connection Manager
Configure Outlook via the Internet
View Client Help
Ask the Community
Local intranet

ET phone home: the remote web workplace can provide remote access to administrators or any other staff member.

to establish connections to the VPN are members of the Mobile Users group. You'll also need to ensure that the client connection manager software is installed on each workstation that needs to connect to the VPN. The software can be accessed via the RWW web site, which is useful if you are at a remote site and requiring access on a system that has never been attached to your LAN (although the security ramifications of doing this probably should be considered). Alternatively, a floppy disk with the connection manager software can be created using the Create Remote Connection Disk wizard.

Finally, don't forget to consider the impact that any firewall or router may have on your provisioning of your VPN. If your server sits behind a router, firewall or NAT gateway, port 1723 needs to be forwarded to your SBS and VPN passthrough must be enabled.

RPC OVER HTTPS

If email access is the only form of remote access that is required, end users can use RPC over HTTPS to directly communicate with Exchange via the internet. Historically, native RPC should not be used over the internet because it can be used to send execution commands to systems, which could lead to security vulnerabilities. However, by encapsulating RPC traffic in HTTPS, some semblance of authentication and authorisation can be used to filter out the malicious traffic.

RPC over HTTPS can be enabled or disabled via the Internet Connection Wizard. Once enabled, you'll need to log on to the RWW site with Administrator credentials, then click on the Additional Links box to the right, followed by the 'Configure Outlook via the Internet' link.

If the latter link does not appear, fire up regedit on the server and navigate to HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\SmallBusinessServer\RemoteUserPortal\AdminLinks, then locate the RPC key and change the value to 1.

REMOTE DESKTOP

The last method for remote access that you should consider is allowing Remote Desktop Protocol (RDP) connections for administrative purposes only. However, if you choose to do this, you should change the port that RDP is listening on for external connections. If your server sits behind a NAT gateway, this is simple enough to achieve using the port-forwarding features of your router.

However, if your server is directly connected to the internet, you'll need to change the value of the HKEY_LOCALMACHINE\System\CurrentControlSet\Control\TerminalServer\WinStations\RDP-Tcp\PortNumber key to a new, random number. The default port for RDP is 3389, but changing this to a different port will minimise the probability of a malicious user being able to connect to your server via RDP.

SOFTWARE UPDATES

The benefits of having a Windows Software Update Services (WSUS) server running on SBS are two-fold — not only can you ensure that all systems on your network are up to date by using a simple-to-use console, but you can also save internet bandwidth, since workstations will download their updates from your server instead of from Microsoft.

Installation of WSUS 3.0 is fairly straightforward on a regular Windows Server 2003 system, but there are a few caveats to be aware of when performing an installation on SBS. The biggest issue that can be encountered is that updates fail to synchronise with SBS Servers after the WSUS Configuration Wizard has been run.

Before installing WSUS, you'll need to download and install:

- **Microsoft .NET Framework 2.0 (http://go.microsoft.com/fwlink/?LinkId=68935)**
- **Microsoft Management Console 3.0 (http://go.microsoft.com/fwlink/?LinkId=70412)**
- **Microsoft Report Viewer 2005 (http://go.microsoft.com/fwlink/?LinkId=70410)**

The other prerequisite for WSUS 3.0 is IIS 6 — which should already be installed on all SBS installations. Once all prerequisites have been met, download WSUS 3.0 from **http://go.microsoft.com/fwlink/?LinkId=89204** and commence the installation.

The first couple of steps of the installation are relatively straightforward. Specify the location where you want your updates stored and (unless you have reason to do otherwise) where you'd like the instance of SQL Server 2005 Embedded Edition that WSUS uses.

On the 'Web Site Selection' screen, ensure that you don't accept the default option and that you 'Create a Microsoft Windows Server Update Services 3.0 Web site'. This is to ensure that WSUS doesn't conflict with your Sharepoint services installation. Before clicking on next, write down the URL that client computers need to use to access WSUS.

After the installation of WSUS has completed, the WSUS Configuration Wizard launches. Each step in this wizard is relatively straightforward — but be sure not to change the Sync Schedule from the default option (Synchronise Automatically). If the Synchronise Manually option is selected, the portion of WSUS that updates SBS cannot be run.

The final step involves configuring all client workstations to check the WSUS server for updates. Thanks to Group Policies, you don't have to go around to every workstation and make configuration changes. If you are running the RTM version of SBS 2003 (ie. not the R2 version), you can download the Group Policy Management Console (GPMC) from **http://go.microsoft.com/fwlink/?linkid=21813.** Once installed, the shortcut to GPMC can be found in the Start Menu under Administrative Tools.

After loading GPMC, expand the branches corresponding to your forest and domains, then right-click on the Default Domain Policy and select Edit. Then expand Computer Configuration > Administrative Templates > Windows Components > Windows Update. Double-click on the Configure Automatic Updates setting and enable it (and customise how automatic updates should behave if you wish). Now, click on the Next Setting button and enable the Specify Intranet Microsoft update service location setting. Finally, enter the URL that you wrote down during the installation of WSUS in both the fields in the dialog box. Once entered, you can click OK.

Once your workstations update their group policy settings, they will contact the WSUS server and send an inventory of what updates are currently installed. Once WSUS has synchronised with Microsoft's update server, it will determine what updates are required (if any), allowing you to approve, download and automatically install each update as it is released.

GROUP POLICIES

As demonstrated above, group policies are perfect for rolling out settings to all (or a subset of) workstations on your network. For just about any setting under Windows that you can think of (including core applications such as Internet Explorer), there is a group policy setting that is available to customise.

The group policies themselves are stored within Active Directory and can be seen under the Group Policy Objects container in GPMC. Each policy can be linked to any number of Organisational Units (OUs) within your domain. Each policy has two sections — one for Computer settings and one for User settings. When a workstation boots up, all of the computer settings contained in group policy objects that are linked to the OU that the computer resides in (along with the policies that are linked to parent OUs) are applied. Likewise, the user settings that are contained in group policy objects linked to the OU that the user is a member of (plus parent OUs) are applied once that user logs on.

MAPPING NETWORK DRIVES AND PRINTERS

Even though it is a relatively trivial task to do, many end users encounter difficulty mapping network drives and printers. Traditionally, administrators write short batch-file or Visual Basic scripts and use the Profile settings for each user account to execute these scripts upon login. While this traditional approach works in most cases, you cannot use these methods to install printer drivers on Vista workstations due to the enhanced security features in Vista. In addition, you can save the effort of having to manually type in the location of a script in each user's account properties by using group policies.

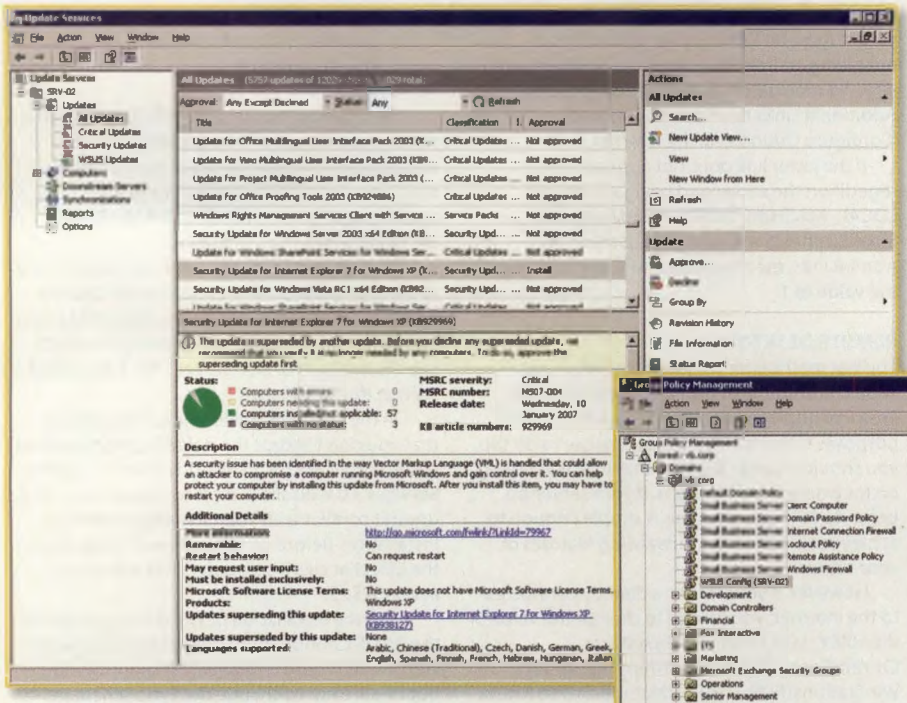
To configure login scripts via group policy, load up or create a new policy within GPMC and navigate to User Configuration > Windows Settings > Scripts (Logon/Logoff). If you double-click on the Logon setting and then click on the Show Files button, an Explorer window opens showing the directory that should contain any batch file or VBS script that you create for that specific policy (note that each group policy object has a unique location for the logon scripts defined for that policy).

Mapping network drives is simple — you can add the following line for each share that you want to map to a batch file:

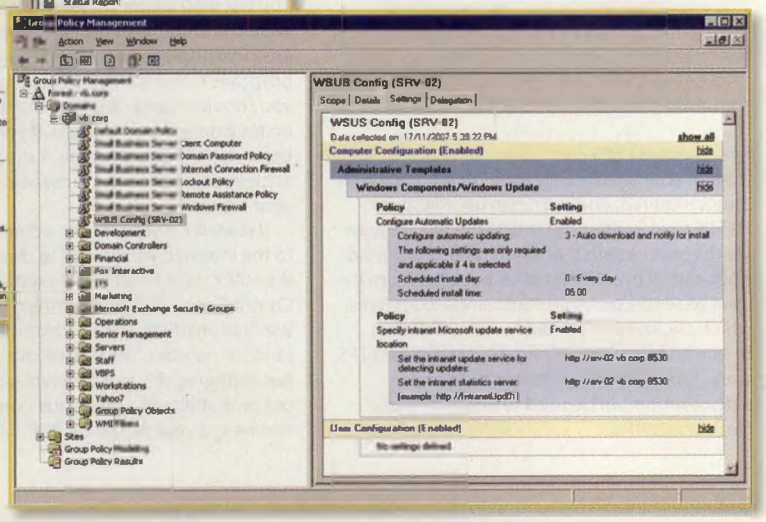
```
net use x: \\server\share
```

If you'd prefer to use a Visual Basic Script, the following syntax will achieve the same result:

```
Option Explicit
Dim objNetwork, objAppl
Set objNetwork = CreateObject("WScript.Network")
Set objAppl = CreateObject("Shall.Application")
```



Keep updated: Windows Software Update Services allows you to keep an inventory of what updates are installed on what systems.



Push it: group policy should be used to push out your WSUS configuration effortlessly to end user workstations.

```
objNetwork.MapNetworkDrive "X:", "\\server\share"
objAppl.NameSpace("X:").Self.Name = "User Friendly Name"
```

Mapping printers is a little more difficult — and the best methodology depends on the client OS that is in use. For pre-Vista (and pre-Server 2008) systems, the following VB Script could be used to map a printer:

```
Option Explicit
Dim objNetwork
Set objNetwork = CreateObject("WScript.Network")
objNetwork.AddWindowsPrinterConnection "\\server\printer", "User Friendly Name"
```

Due to tighter security provisions under Vista and Windows Server 2008, printer drivers cannot be installed by regular users and the above script will not work. Windows Server 2003 R2 has an additional Print Management Console that needs to be used in order to deploy printers to Vista workstations, but this component did not ship with SBS R2 for compatibility reasons. At the time of writing, there are still a number of compatibility issues between Vista and SBS 2003, and the official best practice is to manually install printers under regular user accounts using User Access Control privilege elevation.

VERSION CONTROL

Though typically used by developers for managing source code, version control systems can hold a valuable place in a small business network as a document-management system. The main advantage to using version control systems as opposed to storing documents on a regular file system is that end users can access older versions of any document in a relatively easy manner.

Subversion is becoming one of the more prominent open-source version control systems and is simple to use across a multitude of platforms including Windows, Mac OS X and Linux. Subversion works by hosting a repository database on the server. When a file is first added to a repository, it is copied to the server, and the revision number for the repository is incremented to 'rev1'. If someone else then checks out the original file, opens it, makes some changes, saves and then checks the file back in to the repository, only the changes to the file (in most cases) are committed to the database and the revision number is incremented again (this time to 'rev2').

Because only the changes to a file are committed to the database after changes have been made, the amount of disk space that is consumed is significantly less than what you would have if you kept every single revision of a file stored on a regular file system.

While Subversion is an open source project, CollabNet provides an integrated binary installer for Subversion which can be downloaded from **www.open.collab.net/servletsOCN Download?id=CSVNWINS.** You have the choice of accessing Subversion via two daemons — the native SVNServe daemon that runs on port 3690, or through the Apache Web Server (running on port 80 by default) using the WebDAV protocol. Keen readers will note that if you install the Apache Web Server, its default port will conflict with IIS, which is essential to the smooth running of SBS. As such, if you install the Apache (MOD_DAV_SVN) component, you'll need to edit the httpd.conf file located in the **httpd\conf** directory under where you installed Subversion in order to change the port that Apache uses. The best practice though is to not worry about installing the Apache component and just sticking with using SVNServe.

After installation, you can create a repository from the command line by typing:

```
cd <repository_path>
svnadmin create <repository_name>
```

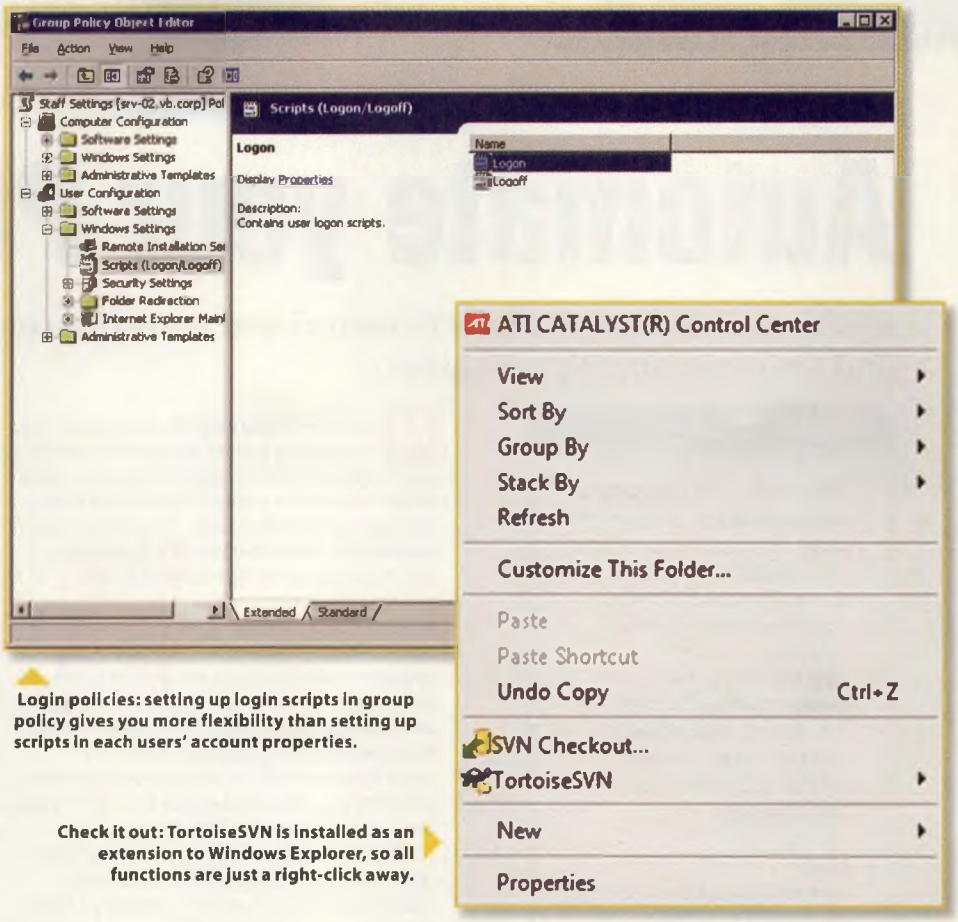
Next, edit the conf\svnserve.conf file located under your new repository's directory and uncomment the following line in order to set up the password database:

```
password-db = passwd
```

Next, edit the passwd file located in the same directory that svnserve.conf lies in and add users as per the comments. Once you've saved your changes, add svnserve.exe to the list of exception in Windows Firewall and start the SVNServe service.

The easiest manner for Windows clients to access data contained in the repository is to use TortoiseSVN, downloadable from **http://tortoisesvn.net/downloads.** Once installed, you can check out a working copy of the repository by loading up Windows Explorer, right-clicking and selecting the Check Out option. The URL of your repository will be **svn://<server_name>/<repository_name>.**

The manual for Subversion can be found at **http://svnbook.red-bean.com/.** apc



Login policies: setting up login scripts in group policy gives you more flexibility than setting up scripts in each users' account properties.

Check it out: TortoiseSVN is installed as an extension to Windows Explorer, so all functions are just a right-click away.

NEXT MONTH

- We go back three months and set up our new server again. However, this time we're using Linux. It will cover how to set up centralised authentication and file and printer sharing.

Automate your PC

***Rod Lawton* shows you how to record and write macros for carrying out repetitive and time-consuming processes.**

REQUIREMENTS

- **WINDOWS MACRO RECORDER**
  www.freelabs.info. This free macro recorder gives you a taste of how useful macros can be but also the limitations of simple mouse/keyboard recorders.
- **WINTASK LITE DEMO**
  www.wintask.com. WinTask Lite is a much more sophisticated automation tool. It records editable scripts which can be customised.
- **AUTOIT**
  www.autoitscript.com. AutoIt is a fully-fledged scripting tool that can be used to produce sophisticated automated operations.

HANDY TIP

When talking about macros, it's worth mentioning the danger of macro viruses: viruses which subvert an application's internal macro language for nefarious means. The most infamous virus of this kind was the Melissa Virus which wreaked havoc in 1999. When an infected document was opened, the virus was activated and it then sent itself to the first 50 people in a victim's email address book. To keep yourself safe, ensure that you're running antivirus software and have Office's macro virus protection systems configured correctly.

Macros can make your life much easier, and by teaching your PC to remember simple commands, you won't have to retype the same thing twice. In this tutorial, we'll look at how software automation works, from simple mouse and keyboard recorders up to fully-fledged interface programming tools like AutoIt.

MACRO RECORDING

Macros are a time saver — Windows Macro Recorder can record your movements until you stop it. One example of how this can work for you is when looking up phone numbers in the Windows Address Book. Just record the sequence you would make to find it, save the macro to your desktop and double-click it every time you want to access the Address Book.

There are disadvantages to simple macro recorders though, such as the mouse will repeat the actions in real time, making it time-consuming. Another is that if the windows move or change, the whole macro breaks down. With macros like these, everything on the screen has to be exactly as it was when it was recorded.

There is a way to get around this. Scripts are command sequences which are executed using functions and parameters that can be defined by the user or, in the case of a program like WinTask, adapted from recorded sequences. You can try this out using the downloadable 30-day trial version of WinTask Lite.

Let's say you use a webmail account when you're on the move and you don't want to go through the log-in process each time. First, run WinTask's script wizard: you can choose to start an application or web site, and we want the latter. Now, choose a name for the script, and for the next step, paste in the web site's URL. Next, press 'Record' and log in to your email account. You stop recording by pressing the button on the WinTask toolbar. Next, you're offered the opportunity to run your script to test it. And by clicking a checkbox, you can have a shortcut to the script saved to your desktop.

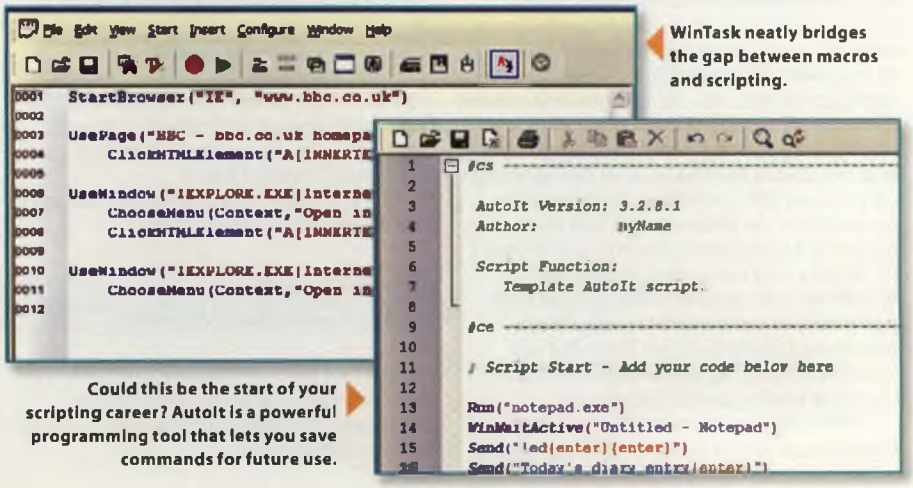
You can now see the finished script in a window and examine the instructions which have been created and the parameters used alongside them. This is an opportunity to 'reverse-engineer' your macros and edit the individual instructions if needed.

SCRIPTING WITH AUTOIT

AutoIt is essentially an object-oriented programming tool for Windows and other applications. We're going to use it to create a script, to edit it and show how to add functions and parameters to control your software — in this case, a dated diary entry in Notepad.

1. CREATE A NEW SCRIPT

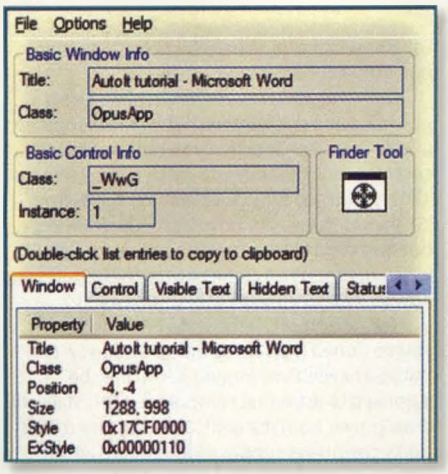
First, right-click in a folder window, choose 'New > AutoIt V3 Script' from the shortcut menu and



WinTask neatly bridges the gap between macros and scripting.

Could this be the start of your scripting career? AutoIt is a powerful programming tool that lets you save commands for future use.

AutoIt's Window Info utility provides window names for pasting into scripts as you work.



choose a name for it. Now right-click this new script and choose 'Edit Script' from the shortcut menu. This opens the script in the SciTE Script Editor supplied with the software.

2. LAUNCH NOTEPAD

The script contains a few lines of information at the top, finishing with the line '; Script Start — Add your code below here'. The semicolon makes this a REM, or comment line, that doesn't affect the running of the script. In the next line, enter:

```
Run("notepad.exe")
```

Now save the script — an untitled Notepad window should appear.

3. WINWAITACTIVE

You should instruct the script to wait until the window is available, as windows differ in the length of time it takes to open. This is done with the WinWaitActive function:

```
WinWaitActive("Untitled - Notepad")
```

Note that the function has a parameter in the brackets which follow it. This is the title of the window the function is waiting for. To find out what this will be, use the 'AutoIt Window Info' utility. If you run the script to display a Notepad window, then select the window. The Info utility will display the window title. This can be cut and pasted into the script as the WinWaitActive function's parameter.

4. SENDING KEYSTROKES

Now you can send some text to Notepad using the Send function:

```
Send("This is some sample text")
```

You can also send keystrokes, like menu shortcuts. These can be used to insert the date, using Alt+E (to open Notepad's Edit menu), 'D' (to insert the date):

```
Send("!ed{enter}{enter}")
```

You can't type in the Alt+E sequence directly, so the exclamation mark is used to indicate the Alt keystroke. You'll want a line space between the date and the insertion point, and that's what the two Enter entries are for. These are AutoIt's codes for the Enter/Return key. Our script has another line below this for the heading:

```
Send("Today's diary entry{enter}")
```

5. CHANGING THE WINDOW TITLE

Finally, you can use another function to change the window's title to something more suitable:

```
WinSetTitle("Untitled - Notepad","","Diary entry")
```

Two parameters are needed for this; the first is the current window title (can be copied/pasted from the current script). The second can be left blank (two double-quotes), while the third should contain the new title. The finished script will now save you time by launching Notepad, inserting the current date, leaving a blank line, inserting a title, placing the insertion point at the start of a blank line below and changing the name of the Notepad document.

DO THIS... CREATE A STANDALONE EXECUTABLE

Once you've created a useful AutoIt script, you can compile it into a standalone executable. There's no need for this on machines where AutoIt is already installed because scripts can be run directly, but it does mean you can distribute useful scripts to others who don't have AutoIt.

The process is straightforward: the AutoIt installation includes the 'Compile script to .exe' utility which displays a simple dialog requesting the script to be compiled (use the 'Browse' button to find it) and the name of the application to be generated. It's even possible to create a custom application icon.

BY TEACHING YOUR PC TO REMEMBER SIMPLE COMMANDS, YOU WON'T HAVE TO RETYPE THE SAME THING TWICE

DO THIS... AUTOMATE YOUR BROWSING

Firefox users who want to automate tedious browsing processes should take a look at the CoScripter extension at *www.tinyurl.com/2r6mmv*. Suggested uses include automating the posting of photos or checking bank information.

The difference with CoScripter is that scripts are stored online for sharing with others. Possibly not ideal for your sensitive financial information, according to one LifeHacker (*www.lifehacker.com*) poster, but an interesting concept. It's certainly not the only web scripting tool around, though: iMacros (*www.iopus.com/imacros*) comes in versions for both Internet Explorer and Firefox.

Automation tools like these ones are especially useful for those of us faced with repetitive data entry tasks on a regular basis. But with some automation tools, including iMacro, the concept is extended to include automated data gathering or, 'web scraping', though, as the tools available become more professional, so does the pricing.

PC power management

***Joe Cassells* uses Windows' power-saving tools to make the most of S3 power saving on a PC.**

REQUIREMENTS

- **A PC RUNNING WINDOWS**
  So you can access the power management features.
- **WOL 1.0.3**
  A Wake on LAN program. You can find this at **www.soft32.com/download_187054.html**.

Carbon footprints have been in the public eye for some time, and we are told saving energy wherever we can will help to stave off environmental catastrophe. While this is a worry, the most immediate effect of saving energy is a lower electricity bill. Computers, particularly those that run 24/7, are responsible for a growing proportion of our power bills, so energy saving using power management is a desirable thing, whether you're trying to save the planet or your wallet. If you stick with the default power settings that your computer came with, you may be missing out on significant savings.

ACPI STANDARD

There is a power-saving standard that applies to PCs and operating systems to describe how to put a computer into a power-saving mode. The Advanced Configuration and Power Interface (ACPI) was developed in late 1996 by companies including HP, Intel, Phoenix, Microsoft and Toshiba. This put control of power management into the hands of the operating system, making it easier for users to set up power schemes than before, as this would have meant digging around in the BIOS, which is usually beyond the skill of a general user.

A computer that complies with ACPI can exist in one of several power states, which are referred to as 'G0' through to 'G3'. 'G0' refers to the full working state of the computer; Windows and its applications are working, the processor is active and other devices can be called upon to carry out work. During full working, some devices may be placed into low-power mode if they're not actively in use. Laptops tend to do this when running on battery, although some desktops also use this technique, usually for noise reduction, but it does conserve power too.

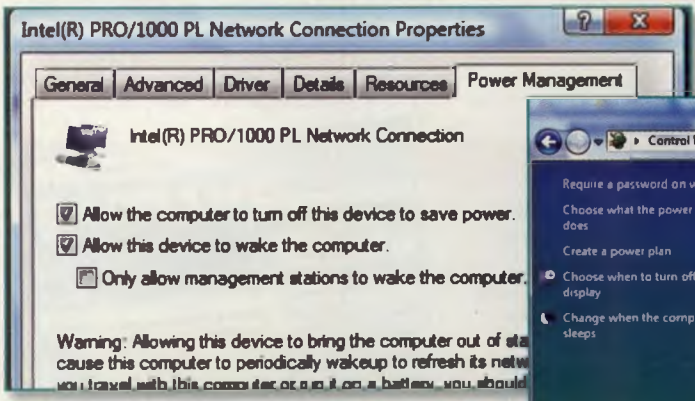
The 'G1' state is known as sleeping. This is a power-saving state entered while the computer is idle. This is the area that you can have most control over in Windows to make energy savings. 'G1' is subdivided into four levels of sleep, from 'S1' to 'S4'. These vary from least power saving, but quickest to return to full working, to slower wake up time. We'll come back to these states and how to make the most of them shortly.

'G2', or 'soft off', is the state a PC is in when you've turned it off using the operating system but you haven't unplugged it. You may be surprised to learn that computers in this state still draw power from the mains. The keyboard, USB ports, the power supply, motherboard and all expansion cards are still powered in this state. In fact, an average computer consumes around 22W of energy, even when it's supposedly turned off. This is why it's not a great idea to perform physical maintenance on a computer while it's plugged in and the power supply is on.

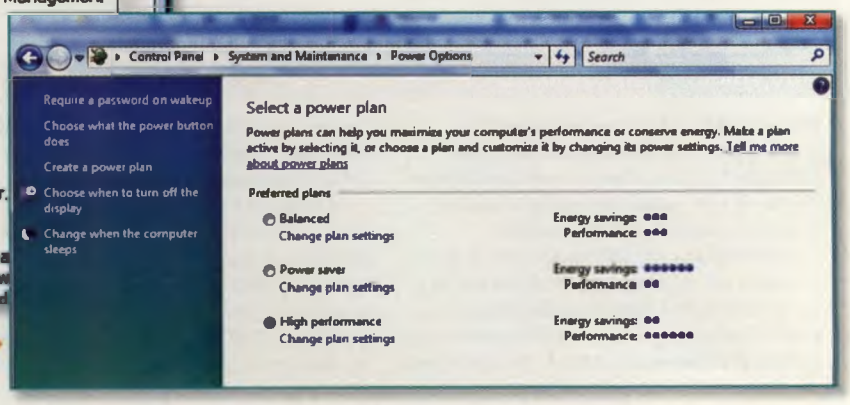
The final global state of 'G3' is mechanical off, when the power has been completely removed from the computer. If you unplug the PC from the main and wait 20 seconds, it will enter this state. If you're not using a PC for an extended period, it's a good idea to unplug it so it enters the 'G3' state and it isn't using power.

STATES OF SLEEP

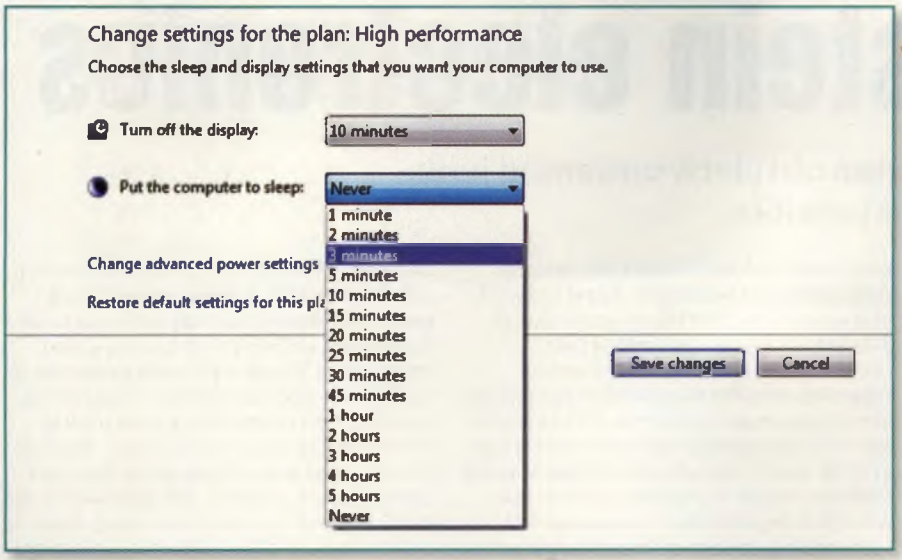
Clearly 'G1', or 'sleep', is the power state where there's the most scope to save energy, as it's here that you can make changes within the operating system. There are different levels of sleep that power down a different range of devices and


Intel(R) PRO/1000 PL Network Connection Properties
General
Advanced
Driver
Details
Resources
Power Management
Intel(R) PRO/1000 PL Network Connection
Allow the computer to turn off this device to save power.
Allow this device to wake the computer.
Only allow management stations to wake the computer.
Warning: Allowing this device to bring the computer out of sta
cause this computer to periodically wakeup to refresh its netw

To be able to use a Wake on LAN program, you will first need to allow your network card to wake up your computer.


Control Panel ▸ System and Maintenance ▸ Power Options
Search
Require a password on wakeup
Choose what the power button does
Create a power plan
Choose when to turn off the display
Change when the computer sleeps
Select a power plan
Power plans can help you maximize your computer's performance or conserve energy. Make a plan active by selecting it, or choose a plan and customize it by changing its power settings. Tell me more about power plans
Preferred plans
Balanced
Change plan settings
Energy savings:
Performance:
Power saver
Change plan settings
Energy savings:
Performance:
High performance
Change plan settings
Energy savings:
Performance:

Vista comes with three preconfigured power plans to choose from: 'Balanced', 'Power Saver' and 'High Performance'.



You can edit a power plan's basic settings to alter how long it takes for your PC to turn off the display and to go into standby.

HANDY TIP

There are four different power states that a processor or CPU can be put into. These are called 'C0' through to 'C3'. 'C0' is the operating state, when the processor is fully functioning. 'C1' is when it isn't executing instructions, but it can return to full operation almost instantly. This is also called 'half state'. 'C2' has the processor active and visible to software, but it may take a little time to wake up. This is also called 'stop clock'. Finally, 'C3' is processor sleep. In this state it doesn't maintain the contents of its cache and will need to be woken before software can access it.

hence save differing amounts of energy. 'S1' sleep involves stopping the processor executing any instructions. Power continues going to the RAM and CPU, so it doesn't save much energy, but it is very quick to awaken from. Few modern PCs support 'S1', as it's pretty wasteful, but you will find it persisting in older computers. 'S2' is a slightly deeper sleep than 'S1', as the processor is powered down, but it's pretty uncommon.

'S3' sleep keeps power to RAM so that your PC can maintain its current status and return from sleep quickly. The processor is powered down, as are the display, hard drives and other unnecessary components. 'S3' is known as 'standby' in Windows, and it's the most useful sleep state for energy saving if you're likely to be leaving your computer for short periods of inactivity.

Windows also has a mode called 'Hibernation', which uses 'S4' sleep. This transfers RAM contents to hard disk so the memory can be powered down. It takes longer to return from, but should you lose power while in hibernation the contents of your open files will also be stored, whereas you would lose any unsaved changes in 'S3' sleep.

POWER OPTIONS

You can examine and change power saving options in Windows itself. The pictures explain how to set up an 'S3' power-saving scheme in Vista, but you can also modify power options in XP. Enter Control Panel and switch to 'Classic View'. Double-click the 'Power Options' applet. You can choose between a number of power-saving schemes or create one of your own and save it. The individual settings provide options for powering off the monitor and hard drives and when to go into standby or hibernate. When you've set up your power-saving scheme, choose 'Save As' and provide a name for your new scheme. On the 'Hibernate' tab, you can switch on the hibernation and, on the 'Advanced' tab, you can decide what to do when you press your PC's power button and sleep button (if present).

THE MOST IMMEDIATE EFFECT OF SAVING ENERGY IS A LOWER ELECTRICITY BILL

BIOS OPTIONS

Some power options can be controlled from the BIOS, and features such as 'Wake on LAN' may need to be turned on from here before they will work. You can also override some of the power-saving options set in Windows by using BIOS edits. If you've set up a power scheme in Windows and it doesn't seem to be working correctly, it's a good idea to take a peek in the BIOS to find out if there's a conflict.

Enter the BIOS by rebooting your computer and pressing Del repeatedly as it starts. If this fails, restart once again and watch the boot screens for mention of the key combination needed to enter 'Setup' or the 'CMOS utility'. Many power-saving features hit performance, but they save energy; most involve shutting down parts of your system after a certain amount of idle time. There are several power-saving states that a PC can enter: 'dozing' slows the processor down to around half the normal speed, 'standby' shuts down the hard drives and graphics output, 'suspend' closes all devices down except the CPU, 'inactive' shuts down the processor and powers down the L2 cache, and the aptly named 'HDD power down' shuts down the hard drive.

Change the 'PM Timers' to set the waiting period before the PC powers down its hard drives or goes into suspend or doze mode. Choose 'Power Management' from the BIOS set-up menu. If you have a 'Global Power Management' setting, set it to 'Enabled'. Other settings let you specify what components power down when the system is idle. Select the 'Power On' function to specify what action will restore power. You can assign this to a hot key or password, or opt to restore power when any key is pressed.

You can also set your PC to wake up when it gets a signal from an attached device or the local network. This signal is often called a 'Magic Packet' and can be generated by a number of programs. You may need to switch on 'Wake on LAN' in the BIOS for this to work. Bear in mind that you will also need to turn on the 'Wake on LAN' features from within Windows. See 'Do this...' below for more details.

DO THIS... WAKE ON LAN WITH WOL

One of the problems with using a scheme that includes 'S3' sleep is that you need to wake the computer up before you can work with it once it's snoozed off. This can be achieved by pressing a mouse button, but you can't do this if you want to access the computer remotely. As far as the network's concerned, the PC is off.

However, if your motherboard and network card support 'Wake on LAN', you can wake your computer remotely. Select the properties of your network card in 'Device manager' and move to 'Power Management'. Tick 'Allow this device to bring the computer out of standby' and click 'OK' twice. Now you can use a wake on LAN program running on another PC to send a wake signal or magic packet to bring your PC out of sleep. One such program is WOL, which you can get from *www.simply-ware.com/download.htm*. Launch the program and enter the IP address or share name of the computer that you want to wake and click 'OK'.

Frankenstein electronics

Create desirable hardware from obsolete, unwanted junk. *Mike Williams* looks at what's possible.

Browse the headlines from the past year and they're packed with references to climate change, carbon footprints and recycling. It's obvious that green issues are high on people's agenda and more important now than they've ever been. Except, of course, in the electronics world, where, if your hardware breaks, or doesn't perform well, or is getting on a bit, or is just the wrong colour, it's off to the local landfill. Immediately.

It doesn't have to be this way, though. No matter how worthless your device may seem, even if it's completely dead, it almost certainly has parts that could bring life to something far more interesting. And in many cases all you need to supply is a little imagination.

Hardware hacking doesn't appeal to everyone, and can be downright intimidating for many people, so if you're more at home with software than soldering irons, you'll probably think this isn't a topic for you. But that's not necessarily the case: some of these projects can be surprisingly simple.

REJUVENATE OLD KIT

Maybe you've grown out of your low-end Canon digital camera, for instance. It doesn't deliver the features you want any more, so you're thinking of ditching it and buying something else. But wait! Install the free software CHDK (**http://chdk.wikia.com/wiki/Main_Page**) and you'll gain extras such as live histograms, under- or over-exposure warnings, depth of field calculations, motion detection for remote triggering, and even the ability to shoot pictures in the unprocessed RAW format. It's really easy to install, and relatively safe for this kind of hack as CHDK doesn't overwrite the original hardware (although we can't completely guarantee you won't have any problems, so do be careful).

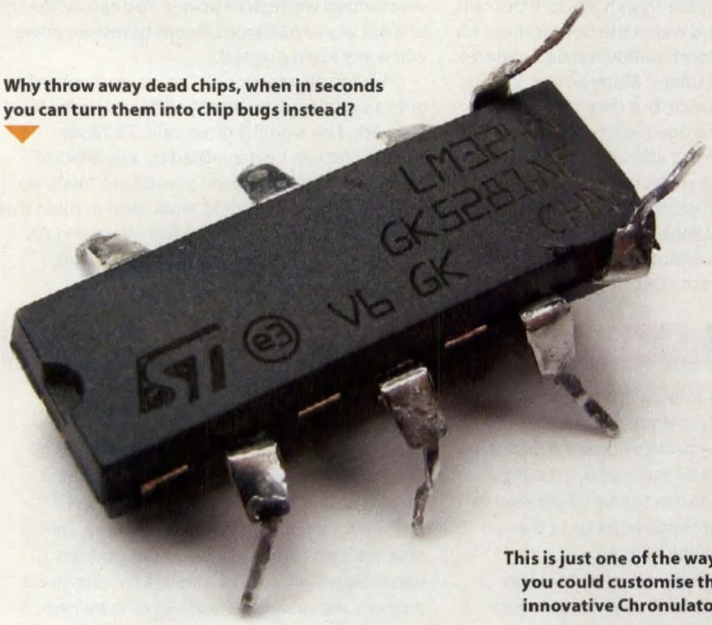
If you've got an ancient graphics or other expansion card that died a long time ago, it might seem a very obvious candidate for Friday's bin collection. But as the Evil Mad Scientist Labs have proven, there is an alternative (**www.tinyurl.com/2h4xxq**) to the landfill site. Take a few moments to extract the chips with a PLCC extractor or just a flat-blade screwdriver, then turn them into chip bugs — cute little insect-like sculptures. It only takes a moment to bend the front legs up to form antennae and rearrange the others to make it look as though they're walking, but the results (as you can see from the picture below) are surprisingly appealing.

Best of all, apart from whatever you use to remove the chips from your machine, the bugs can be made without the need for any tools. If you're more ambitious but just inexperienced at hardware hacking, it might be best to start with a kit. The Chronulator (**www.sharebrained.com/chronulator**) is an imaginative clock that shows hours and minutes on two old analog panel meters, though it can easily be dressed up to use all kinds of old electronic or mechanical hardware. Prices range from around US$9 to US$79 depending on what you buy — there are kits you solder together yourself, or you could just buy the circuit boards. The good news is that it's all very professionally documented, allowing you to follow the beginner-friendly instructions quite easily. You'll soon have a Chronulator of your own.

FUN WITH BLUETOOTH

Bluetooth headphones are a great way to enjoy your MP3 player without being tied down or tangled up. Until you break the headband, that is, and then it's tempting to throw them away and go buy a sturdier pair. But before you chuck them out, remember that they still have a working Bluetooth receiver. Why not salvage that and use the circuitry to convert wired headphones into a wireless headset?

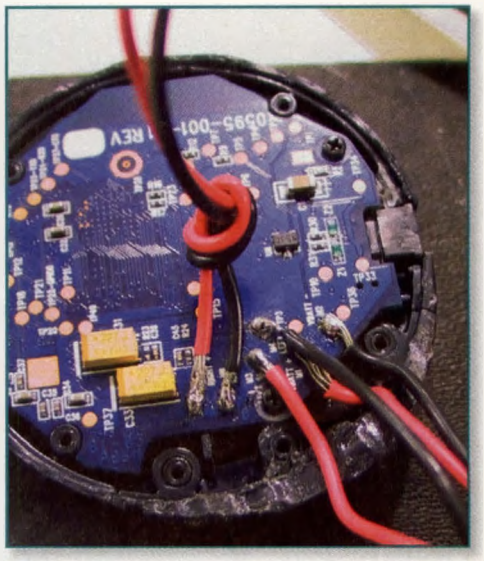
The trickiest part of this project comes in finding suitable wired headphones. It must be possible to take them apart without causing too much destruction; a clearly marked circuit board



Why throw away dead chips, when in seconds you can turn them into chip bugs instead?

This is just one of the ways you could customise the innovative Chronulator.

You can use your hand-crankable Dynamo torch to power your USB peripherals.



Yes, there is some soldering involved in this recycled creation, but don't be scared. Wiring up headphones is as easy as it gets.

will help with your soldering; they need room inside to hold the Bluetooth board and battery; and being able to clip them back together without having to use tape or glue helps too. People who have tried this before say Sony's MDR-XD100 Studio Monitor headphones work well for this, though doubtless many other models fit the bill.

Once you have the wired headset, everything else is surprisingly simple. The Bluetooth receiver will have a positive and negative wire running to each of its left and right audio connections; the wired headphones will be very similar. Place the Bluetooth circuit inside the wired headset, then solder the new wires that will run from the left and right connections on your receiver to the equivalent point on the headphones, making sure you include enough slack to cater for adjusting the headphones later (you don't want to rip the wires out by stretching them too far). As long as you've left the battery connected, they should now work. Secure the receiver and battery so they don't rattle around, and you're almost ready to go.

> NO MATTER HOW WORTHLESS YOUR DEVICE MAY SEEM, IT'LL HAVE PARTS THAT COULD BRING LIFE TO SOMETHING

Of course, there are still aesthetic issues to look at. How can you hide the wire running from the receiver in one headphone to the speaker in the other? Is there a way you can make the controls in the Bluetooth headset accessible from your new hybrid pair? Reading more about the experiences of those who have tried this before should help you solve any remaining problems — there's advice to be found at the sites **www.tinyurl.com/yvwrwm** and **www.tinyurl.com/2hpt62**.

USB POWER ANYWHERE

Being able to use broken hardware is useful, but sometimes you just want to take a device and make it better. And the hand-cranked torch is a perfect example. The idea of a flashlight that doesn't need batteries sounds good, but most people don't unexpectedly need a tiny torch with a small bulb very often, and so it sits in the glove compartment of the car on the off-chance that maybe, one day, it'll come in handy.

Meanwhile, if you've got a digital camera or MP3 player, the chances are you'll find they run out of power on an inconveniently regular basis, leaving you stranded without a charger. So wouldn't your flashlight be of better use if it could output power via a USB port and act as an emergency charger for all your computer peripherals? That's just what prolific hardware

SPOTLIGHT ON... FROM PLAYSTATION TO LIGHT-SEEKING ROBOT

Most of the projects we have covered here have been beginner-friendly; suitable for anyone with just a little hardware-hacking experience. But sometimes, just occasionally, it's interesting to look at what really talented engineers can do with their own recycling projects. We're not saying you should try to copy them for yourselves – just to be inspired with a new sense of what's possible.

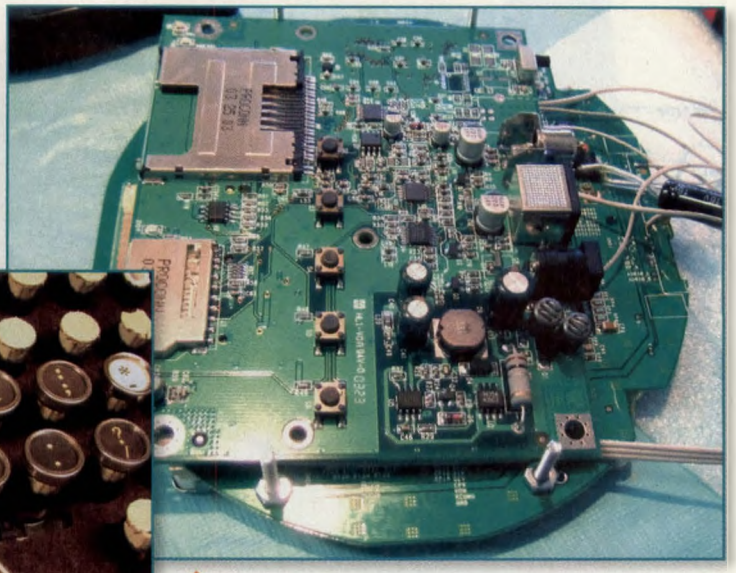
Harold Ilano, for example, is an expert in robotics, so you'd expect him to be working on big-budget academic or military projects. But you'd be wrong. Ilano is more interested in BEAM (Biology, Electronics, Aesthetics, Mechanics) robotics, where basic analog circuits are used in preference to microprocessors, under a philosophy that says designs should be kept as simple as possible.

Perhaps it shouldn't be surprising that Ilano managed to build his Mercury robot from 'metal scraps', then: primarily Sony PlayStation components and the battery from a mobile phone. Yet, it's still highly functional: Mercury can follow a light source, turn on two red LEDs if it detects darkness, and also includes tactile sensors so it can work out when there's something in its way.

You can find out more about this versatile, intelligent and cute little robot at Ilano's Mercury web site (*www.tinyurl.com/23x38h*), which includes videos and details of the construction process. And if you're electronically gifted, then you'll appreciate the site's inclusion of the bug's all-important circuit diagram, which should help you build a custom Mercury of your very own.

Harold Ilano's clever little Mercury bugbot shows just what can be done with a few scrap electronic components.

Some Frankenstein projects are much more painstaking than others, like the Steampunk keyboard that has been made from recycled typewriters to create a great retro look.



This LCD display may look complex once it's out of its case, yet converting it into a digital photo frame to show off your favourite pictures is surprisingly straightforward.

hacking blogger 'Moddy' set out to achieve, although it wasn't always easy.

"You have to be really careful when opening the flashlight," he warns. "It'll have this complicated arrangement of gears, and if you get too aggressive then it'll fall apart." Read his instructions (**www.tinyurl.com/25vkmy**) and you'll see there are further complications, including the need to create a rectifier to convert from AC to DC power. However, you can simplify the process by buying a rectifier from an electronics store, and after that most of your effort will probably go into cutting a USB-sized hole in the flashlight. There's a little hassle, then, but Moddy says it's well worth it: "Hand-cranking my flashlight puts out about half the amps, and almost the same voltage, as a regular USB. You wouldn't want to use it to charge anything from scratch, but it's definitely a practical way to squeeze a few more shots out of your digital camera."

THE STEAMPUNK KEYBOARD

Rewiring headphones and flashlights can be useful, but it doesn't make for the most visually interesting results. For those, you want Jake von Slatt's stylish Steampunk keyboard project (**www.tinyurl.com/2l49bp**). He recycled keys from two old typewriters, glued them to a classic IBM Model M 'clicky' keyboard, then added his own brass cradle as a finishing touch. The result is a gorgeous retro keyboard that von Slatt says is practical, too: "It performs quite well, and has survived being shipped around the country for magazine photo shoots and TV appearances".

This is no small-scale project though, and it'll take some effort to produce similar results for yourself. Every key on the original keyboard must be removed, for instance, and a cradle made out of brass. Von Slatt needed two vintage typewriters to get enough keys (from around $50 each on eBay if you don't have any). Cutting those so they're flat enough to use isn't easy, and then you must glue them in place, one by one.

There are plenty of pictures and video instructions to help, and if you're adventurous then von Slatt has improvements in mind: "If I made another keyboard I would definitely adopt my friend Doc's method (**www.tinyurl.com/yoeswf**) of removing the glass and rings of the typewriter keys and crimping them onto the computer keyboard rather then gluing — it's a more elegant and robust method."

THE REAL TRICK TO FRANKENSTEIN PROJECTS COMES FROM SEEING HOW YOUR DEVICES CAN CONNECT

Of course, if you do make a Steampunk keyboard of your own, it'll leave your regular PC monitor looking somewhat out of place. Check von Slatt's site for details on how to give that a retro look too (**www.tinyurl.com/ 2vcrvb**), as well as other Steampunk projects.

DIY DIGITAL PHOTO FRAME

The real trick to producing successful Frankenstein electronic projects comes from seeing how your ageing devices can be connected, giving life to something entirely new. If you've got one of those 5in LCD screens left over from a broken games console, for instance, then it's probably just sitting in a box. However, connect it to something like the SanDisk Digital Photo Viewer and you can use the screen to show photos on most common memory cards. Put both inside a stylish casing and you've just created your very own digital photo frame.

It's relatively easy to put together — the Photo Viewer outputs composite video and the screen usually accepts it. You can read more on the 'how to do everything' Instructables site (**www.instructables.com/member/joedog86**).

The same lateral thinking approach can be applied even to the most basic and unlikely piece of hardware. It's not too difficult to imagine how that spare two-button mouse could be turned into a shutter release for a camera, say (**visit www.tinyurl.com/ywatyx**), but it takes a touch of twisted genius to realise you can use the sensor in an optical mouse to turn it into a low-res camera (**www.instructables.com/id/Mouse-Cam**), or turn a faulty hard drive into a speaker (**www.tinyurl.com/2da8zm**).

You may not feel as inspired as this when first trying your hand at Frankenstein electronics — and that's just fine, everyone has to start somewhere. Just make sure that in future, you don't carelessly throw away a piece of hardware just because it's no longer fit for the purpose for which it was initially built. Even the simplest device, though apparently broken beyond repair, might still have potentially very interesting uses, if only you can look at it in the right way. apc

Control your users

Linux is designed for many users, so why not get your whole family started today? *Paul Hudson* and *Graham Morrison* show you how.

WHAT'S COVERED

- **USER ACCOUNTS**
  How Linux user accounts work, what they do and how to configure them is essential to system security – by the end of this workshop you'll be an expert. There is, as we shall see, no point giving everyone on your system the power to do everything. In the case of user privileges, less is more...

REQUIREMENTS

- **A LINUX DISTRIBUTION**
  You'll find one on the *APC* DVD.
- **JOHN THE RIPPER**
  This tool is an invaluable security program that tests the strength and integrity of your passwords

When someone in your family wants to use your Windows computer, you really only have two options if you value your data: run Norton Ghost, let them run free, then roll back to the safe copy when they've gone; or tell them to clear off and buy a PC for themselves.

With Linux, however, you can add a safe user account that's impossible for even the most clueless user to break — that means no adding or removing programs, no deleting files that don't belong to them, and certainly no way to flatten the system with viruses.

You almost certainly have at least two accounts you know about on your system: your normal user account, and the 'root' administrator account which you use for special system tasks. If you're using Ubuntu, the root user is not accessible by default; instead, it asks you for your own user password to perform administrative tasks. This month you're going to learn how to add new users to your system, change your password, and also how to manage groups for easy administration.

I, USER

Each user on a Linux computer has their own workspace: their own desktop, their own home folder, their own menus and their own configuration settings. By default, no one user can mess with the files or settings of other users, which means you can let your kids run riot on your PC and, as long as you don't forget to log out of your own account, it will be quite safe.

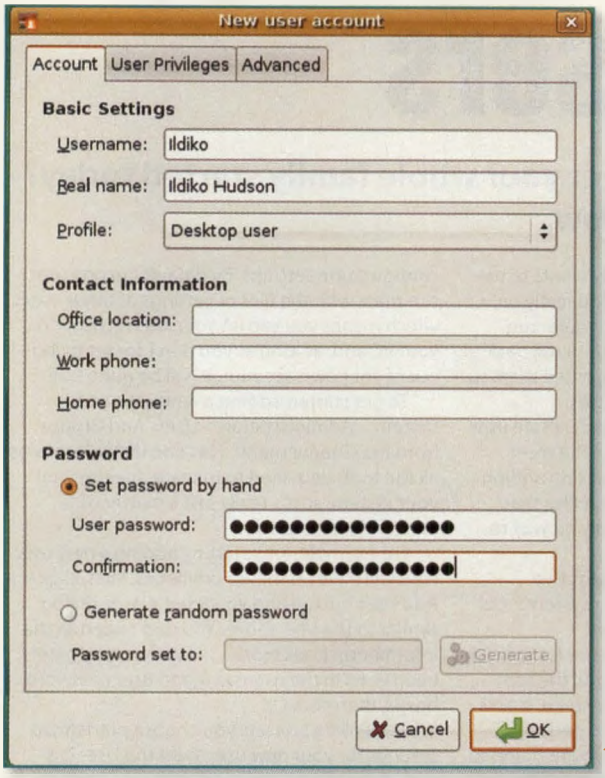
To get started adding a new user, go to System > Administration > Users And Groups from the Gnome menu. This one dialog contains all the tools you need to manage the users on your system, so it's really just a matter of mastering all it can do.

For example, let's start by adding a new user who will have restricted privileges. First, click the Add User button and you'll see a large dialog similar to the one above. You don't need all the information it asks for — in fact, you really only need to fill in the username and user password boxes, then click OK.

The Profile box lets you choose predefined settings for your new user; Desktop User is a generic profile that gives them access to their computer for personal needs while disallowing administrator access. The other two tabs are best left with their default settings, so you can just click OK to add the user immediately. That's it: your user can log in straight away . That wasn't so hard, was it?

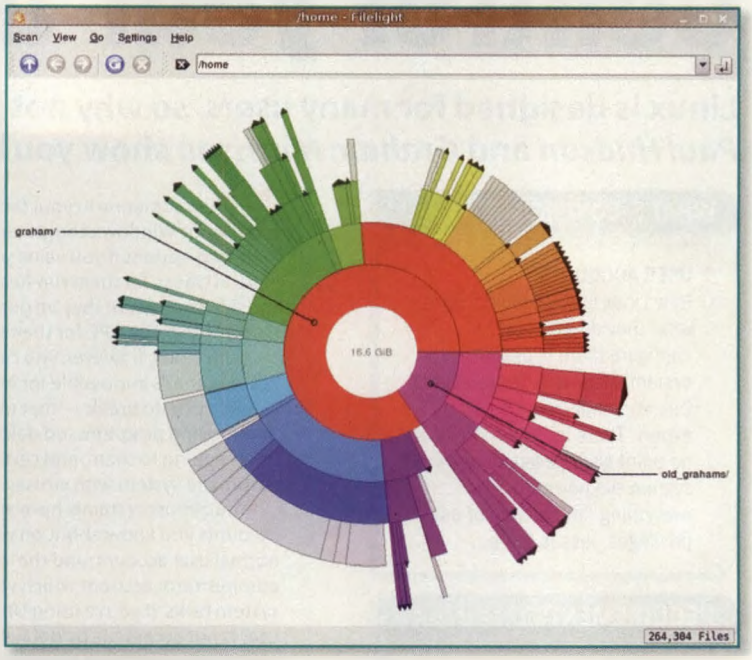
> IF USERS HAVE THE SAME PRIVILEGE LEVEL CREATE A GROUP TO DEFINE THAT PRIVILEGE LEVEL AND ADD THOSE USERS

Of course, see a user with a screen like this and you'll have to shun them.



You just need a username and password to create a new account.

There are plenty of graphical tools available for visualising your disk use within Linux, including KDE's 'Filelight'.



PASSWORD SAFETY

The Users and Groups dialog can also be used to change your own account settings, including changing your account password, but getting to that dialog requires administrator privileges. If you don't want to give people admin privileges just to change their own user information, a much safer option is to point them towards the About Me dialog under the System > Preferences menu, as this allows users to change their own information by themselves.

As with Users and Groups, you can fill in as much of the About Me dialog as you have time for. You can also click the empty box to the left of your name to set a picture for your account. Changing your password is done through the button on the top right — you'll need to provide your existing password to verify that you have permission to alter the account.

Someone administering the computer of a family with several children — or an office with several workers — will soon get bored of setting individual user account privileges for everyone, and the problem only gets worse as more users are added. The solution is to generalise: if all your family, or most of the users in your company, have the same privilege level then you can just create a group to define that privilege level and add those users to the group.

For example, in a small company you might just need three groups: users, managers and admin. The users group should be able to read and write files shared in the home/users directory; the managers group should be able to read and write files shared in the /home/users and /home/managers directory; and the admin group should be for people who need read-only access to all the files on the system, so they can back up data and also monitor the system. Of course, true admin privileges are reserved for the root user.

To create a new group, go back into the Users and Groups dialog, then click Manage Groups > Add Group. Enter 'managers' for the name, then select all the users on your system who you want to be in the managers group. Now open Nautilus and browse to a directory you want to use for managers' files, right-click on it, choose the Permissions tab, then change the Group selection box to your new managers group. Before you click Close, you can also use this window to set how other users can interact with the managers' files — you'll probably find it's set to Access files by default, but you can change it to None for maximum security.

MONITORING USERS

If you've got more than one user on your system, you can rightly call yourself a system administrator. And just like every other system administrator, it's important to know exactly how many resources each user on your system is consuming. Whether it's a network of 1,000 machines or a single Dell desktop sitting in the corner of your front room, keeping on top of what's being used and by whom is often your main concern. Fortunately, as an operating system designed to accommodate multiple users, as well as integrating a large chunk of Unix functionality, Linux is particularly well suited for monitoring users.

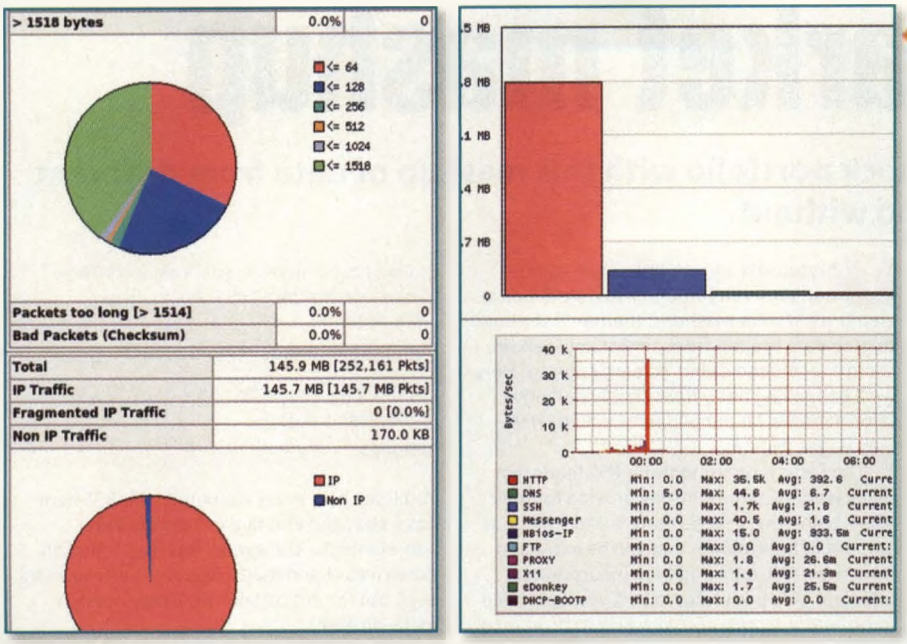
The simplest approach to finding out just how much space your users are taking up is to monitor their home directories. Thanks to the restrictive permission system used by the Linux filesystem, a user can only store files in their own home directory. If they're able to save them anywhere else (such as the '/tmp' directory, for example), there's no guarantee their files will still be there tomorrow — which is a good reason to ensure that directories such as '/tmp' aren't user-writable.

You can monitor the size of a user's home directory by using a simple command such as 'du | home | username'. This will scan through

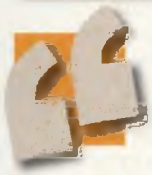
DO THIS... DESIGN YOUR DESKTOPS

Want your kids to see Gnome as the ultimate games system? Want your mother to have quick access to her email and other common tasks? Gnome has a new tool called Sabayon, but you might see it listed as User Profile Editor. If you don't have it installed, we highly recommend it:

Sabayon works by opening up a nested X window with a profile inside. Any changes you make inside that X window are saved to the profile, and you can then assign that profile to other users on your system so they can see the customised Gnome desktop you've created.



'ntop' can monitor exactly who's doing what over your network connection, including messenger and P2P protocols.



IT'S ALSO A GREAT WAY OF ANNOYING FAMILY MEMBERS WHO KEEP USING THE DOG'S NAME AS A PASSWORD

the directory, adding up the size of each file before leaving you with a total looking something like this:

```
15352496    /home/username
```

The large number preceding the username is the number of kilobytes occupied by the user's directory — in this case, 15352496 is around 14.6GB. Use the '-h' argument for a more readable, but approximate, output.

Many Linux installations use a separate partition for the home directories, and in these cases, typing 'df /home' will tell you immediately how much space is being used by all users, and how much free space is available on the '/home' partition. But keeping track of how much space your users are using is only a third of the story. There are two other commodities in short supply on any multi-user system, and those are network bandwidth and processing power.

CPU AND NETWORK TOOLS

Processor usage is easy to spot using a tool such as 'top'. When executed from the command line, 'top' lists the most processor-guzzling processes, with the highest consumer at the top. Five status lines also tell you various statistics for your system, including the load average and the total number of running tasks. There's a similar tool for monitoring network use, conveniently called 'ntop', although it's not executed the same way as the process-monitoring tool. Instead, once 'ntop' is installed, the best way to start it is as a system service, either from your distribution's configuration panel, or by typing '/etc/init.d/ntop start' for the majority of Linux installations.

'ntop' will then start analysing packet information for your network and logging the data. This can be viewed by connecting a web browser to port 3000 on the machine running 'ntop', or just 'http://localhost:3000' if that's the same machine you're at. You'll see lots of important information about how your bandwidth is being used, including how much bandwidth instant messaging, SSH and web-hosting services are consuming. Selecting 'Hosts' from the 'Summary' menu will also let you see exactly which users are uploading and downloading the most data.

If you need to monitor users themselves, the tool to use is 'whowatch'. When you run this from the command line on the machine you want to monitor, you can see all the connected users as they log in and out of your machine. This is a handy tool to keep open if you're concerned about the number of users on your system. Another option is a terminal viewing the tail-end of the 'auth.log' log file. This contains information on attempted logins, whether they're successful or not. This is the best way of finding if someone is trying to gain access to your system by exploiting a weak user password — the most common open door for hackers.

PASSWORD PROTECTION

There are several things you can do as a system administrator to make sure a user's password is as strong as possible. The first is to ensure they select the right password, using both upper and lower case characters, ideally mixed with numbers. A dictionary attack using common dates is the most popular method of cracking a user's password. The second thing is to make sure passwords are changed regularly. This instantly wipes any advantage a hacker may have if they think they've guessed one or two characters of a password.

You can manually expire a user's password by typing 'passwd -e username'. The next time the user logs in, they'll be forced to type a new password. You can make this even safer by using the 'passwd' command to ensure a user changes their password regularly. 'passwd --mindays 10 username', for example, will force the user to come up with a new password every 10 days if they still want access to the machine. It's also a great way of annoying family members who keep using the dog's name as a password.

SPOTLIGHT ON... CREATE HARDENED PROFILES

If you need finer control over what your users can and can't do, the generic Linux security module PAM is what you need. PAM (Pluggable Authentication Modules) is used by Linux to provide general system security. It's responsible for making sure your passwords aren't hijacked while being authenticated, as well as a dozen other tasks. But this flexibility means PAM is also a relatively complex suite of tools to tame. As its name suggests, it uses separate library modules to implement functionality, and new modules need to be added and configured manually. The one that's of most use for checking user passwords is called libpam-passwdqc. Easy, no?

Once installed, this module will check the strength of user passwords on your system when they're renewed and created, saving you the trouble of testing them yourself. Using another PAM module called 'limits' adds the ability to limit exactly what a user can and can't do. When the 'pam_limits' module is installed, editing the '/etc/security/limits.conf' file gives you power over things such as the maximum file size a user can generate, the number of simultaneous logins they can use, and the priority any processes they start will have. This gives you complete control over how your system resources are used, and helps you rein in wayward users.

Stock market mashup

Make it easy to track your stock portfolio with this mashup of data from different web sites, with RSS feeds and without.

REQUIREMENTS

- **A WEB HOSTING ACCOUNT OR PC**
  This project can run on a local PC, but unless you have it configured as an internet server you are recommended to use a web hosting account.
- **PHP 5**
  A server-side scripting language for creating HTML and other output.
- **SIMPLEXML**
  A PHP 5 extension for parsing XML data.

INSIDE INFO

- Financial and stock information:
  http://finance.yahoo.com
  http://finance.google.com
  http://moneycentral.msn.com
- Writing and using mashups:
  www.programmableweb.com/code
  http://en.wikipedia.org/wiki/mashup
  www.webmashup.com

This tutorial is invaluable, even if you don't own any stock. Firstly, we'll look at creating different mashups; then we'll see how to grab data like this from almost any web site using a technique called 'screen scraping'. Here, we'll be moving away from simply pulling in information in favour of downloading HTML web pages directly.

The focus is on using those RSS feeds that many web sites thoughtfully provide for their users. Using these feeds there is a tremendous amount of information that can be extracted from their XML data and then incorporated into your own pages. To do this, you only need to be faintly acquainted with PHP to be able to make use of the very short yet powerful functions provided.

PARSING XML

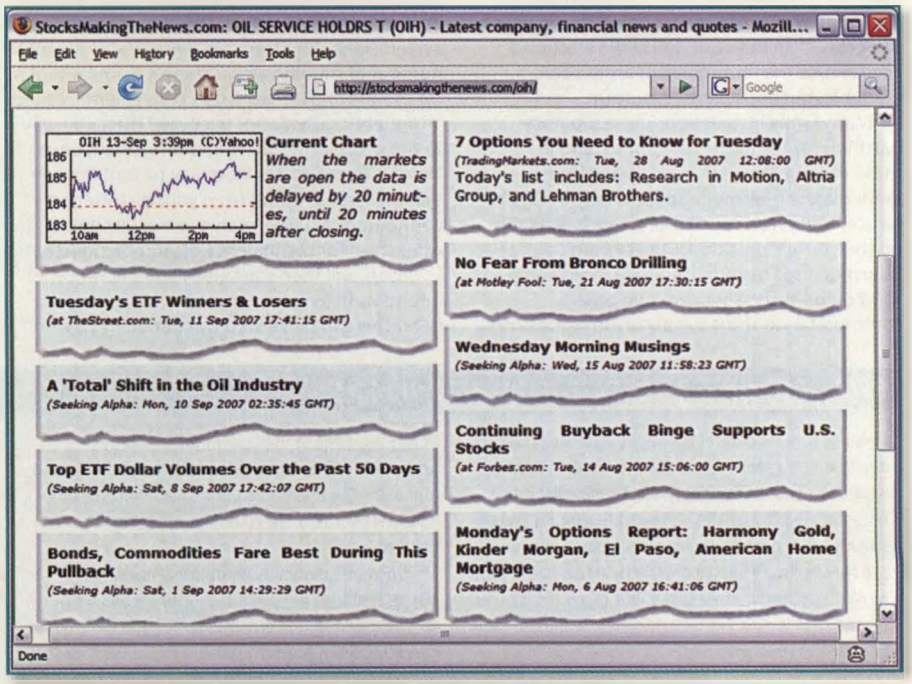
XML data is very easy to understand and read, both by humans and computers, but it's not quite so easy to parse if you have your own routines. Here's an example of an RSS item from a feed you might get from sites like MSN, Google and Yahoo!:

```
<item>
<title>Interesting news story</ title>
<link>http://interestingsite.com/story.htm</
link> <description>This is fascinating</
description>
<guid isPermaLink="false">123456 </guid>
<pubDate>Thu, 13 Sep 2007 21:59:59 GMT</
pubDate>
</item>
```

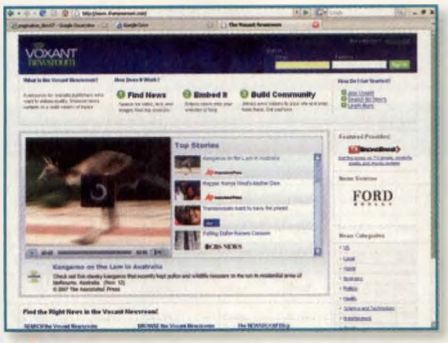
You'll see how every element in this RSS item has a start and end tag and can contain sub-elements. The overall RSS feed is broken down into channels, items and other important tags, but for this tutorial, we'll only need to focus on items.

To make it easy to extract the data needed, we'll be using the function simplexml_load_string() which is part of the SimpleXML extension for PHP 5. In the following function we pass two parameters, a site identifier and a stock symbol (for example 'MSN' or 'MSFT').

The first three lines of code then check which site we want to fetch an RSS feed from and set the string $url to the correct syntax that site requires. Then the XML is grabbed using the function file_get_contents() (which will fetch a file from the internet if it begins with HTTP:///) and then passes it to simplexml_load_string()for parsing:


StocksMakingTheNews.com: OIL SERVICE HOLDRS T (OIH) - Latest company, financial news and quotes - Mozill...
File Edit View History Bookmarks Tools Help
http://stocksmakingthenews.com/oih/
OIH 13-Sep 3:39pm (C)Yahoo!
186
185
184
183
10am 12pm 2pm 4pm
Current Chart
When the markets are open the data is delayed by 20 minutes, until 20 minutes after closing.
7 Options You Need to Know for Tuesday
(TradingMarkets.com: Tue, 28 Aug 2007 12:08:00 GMT)
Today's list includes: Research in Motion, Altria Group, and Lehman Brothers.
No Fear From Bronco Drilling
(at Motley Fool: Tue, 21 Aug 2007 17:30:15 GMT)
Tuesday's ETF Winners & Losers
(at TheStreet.com: Tue, 11 Sep 2007 17:41:15 GMT)
Wednesday Morning Musings
(Seeking Alpha: Wed, 15 Aug 2007 11:58:23 GMT)
A 'Total' Shift in the Oil Industry
(Seeking Alpha: Mon, 10 Sep 2007 02:35:45 GMT)
Continuing Buyback Binge Supports U.S. Stocks
(at Forbes.com: Tue, 14 Aug 2007 15:06:00 GMT)
Top ETF Dollar Volumes Over the Past 50 Days
(Seeking Alpha: Sat, 8 Sep 2007 17:42:07 GMT)
Monday's Options Report: Harmony Gold, Kinder Morgan, El Paso, American Home Mortgage
(Seeking Alpha: Mon, 6 Aug 2007 16:41:06 GMT)
Bonds, Commodities Fare Best During This Pullback
(Seeking Alpha: Sat, 1 Sep 2007 14:29:29 GMT)
Done

Using a little PHP to gather items from RSS feeds, you can build your own stock market mashup just like this one.



Voxant is the classic example of what can be achieved by mashup makers.

SPOTLIGHT ON... EXISTING STOCK MASHUP WEB SITES

There's a marvellous example of a useful stock market mashup to be found at Editgrid.com, a powerful, in-browser spreadsheet application. Simply visit *www.editgrid.com/untitled* to see an example chart combining the current data for Google, Microsoft and Yahoo! stocks. The information is pulled from *http://finance.yahoo.com* and presented to the viewer in a convenient and ready-to use spreadsheet.

Meanwhile, 411sync.com (*www.411sync.com/*) takes the same data and processes it into a format your mobile phone can handle, including SMS, WAP or email.

Editgrid.com allows you to grab stock market data into its online spreadsheet application.

```
function getnews($site,$symbol)
{
if ($site == "Yahoo") $url="http://finance.
yahoo.com/rss/headline?s=";
elseif ($site == "MSN") $url="http://
moneycentral.msn.com/community/rss/
generate_feed.aspx ?feedType=0&symbol=";
else $url="http://news.google.com/
news?output=rss&q=";
$xml=file_get_ contents("$url$symbol");
$sxml=simplexml_load_ string($xml);

foreach($sxml->channel->item as $item)
{
$date=$item->pubDate;
$title=$item->title;
$text=$item->description;
$news.="$date:
$title<br>$text<p>";
}
return $news;
}
```

All the parsed data is placed in $sxml and can now be easily extracted using the first piece of code. Now we can obtain the date of an item we use in the second piece of code below:

```
$string=$item->XMLtag;
$date=$item->pubDate;
```

All this takes place within each loop, where each set of data extracted is appended to the string $news, which is then returned when the function exits.

This code is all we need to get all the latest news for any stock symbol from any of the three main web sites:

```
echo getnews("Yahoo","AAPL");
echo getnews("MSN","CAT");
echo getnews("Google","GE");
```

> USING THE TECHNIQUES DESCRIBED HERE, YOU'LL NOW BE ABLE TO INCLUDE ANY RSS FEED YOU COME ACROSS

INCLUDING THE LATEST CHARTS

We need charts for our stock market mashup, and that's very easy to implement from these same three web sites. To determine how to display their various charts it was simply a matter of visiting each web site, right-clicking on their graphs and looking at the URL information. So this part of the mashup is even easier than the first. The following function is all you need to display any stock chart from each of these sites:

```
function getchart($site,$symbol)
{
if ($site == "Yahoo") $chart="http:// ichart.
finance.yahoo.com/
b?s=$symbol";
elseif ($site == "MSN")
$chart="http://data.moneycentral. msn.com/
scripts/chrtsrv.dll?Symbol=$symbol";
else $chart="http://www.google. com/pfetch/
dchart?s=$symbol";
return "<img src='$chart'>";
}
```

This code is similar to the getnews() function in that it first creates a correctly formatted string for each of the web sites, then it appends the chosen stock symbol and returns the HTML code needed to display the chart. You can call it in the following way, shown below:

```
echo getchart("Yahoo","NWS");
echo getchart("MSN","DOW");
echo getchart("Google","VIA");
```

UTILISING RSS FEEDS

Using the techniques described in this article, you'll now be able to include any RSS feed you come across. This is not just limited to stocks but allows you to create any mashups you like. However, sticking with the subject in hand, to further flesh out your own financial mashup, it's already an easy matter for you to grab additional information from across the web because of the vast quantity of data that is now stored in RSS format.

For example, there are a significant number of financial experts who have blogs with RSS feeds, so why not slightly modify the supplied

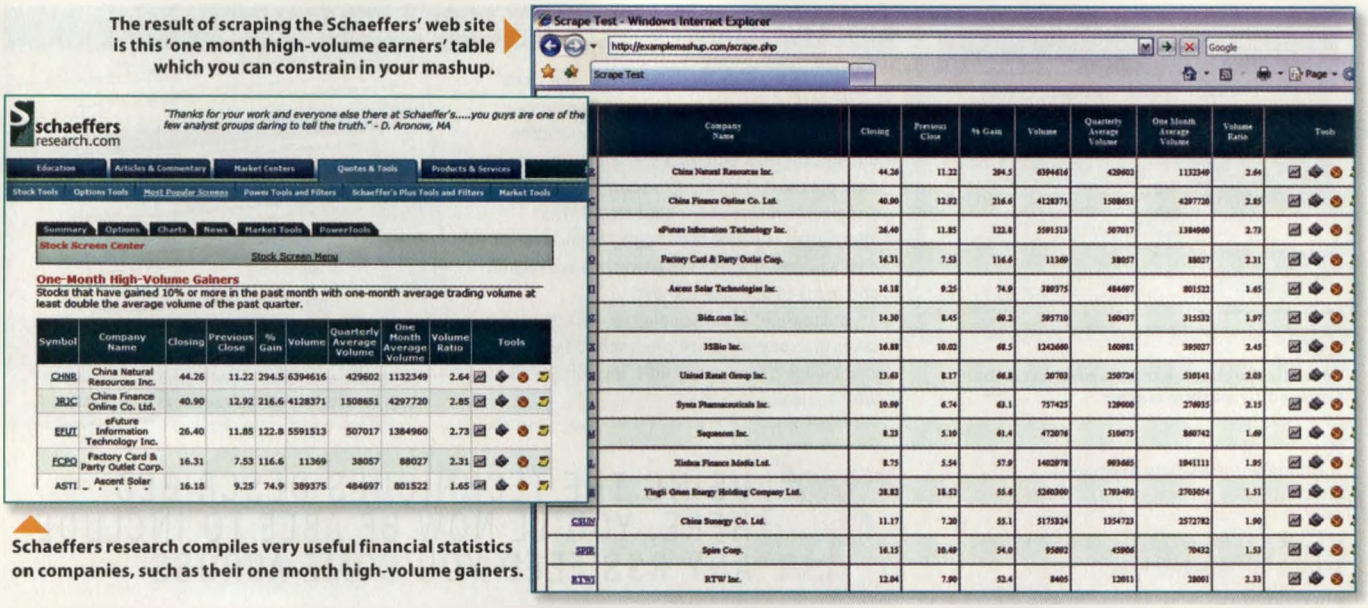
DO THIS... RESPECT COPYRIGHTS

Due to the distributed nature of the internet, mashups are a fast-growing development, and where good combinations are made (such as combining Google Maps with data on houses for sale) the sum of the whole becomes greater than the parts.

However, there is always the thorny issue of copyright. When you create a mashup to run on your own computer for your own personal use, then that would be considered 'fair use'. Remember that if you are building a web site for the general public to use, then repurposing data from third-party web sites without their permission could land you in trouble.

The examples in this tutorial use data from many third-party web sites, and therefore you should only run them on a private PC or a web site that only you have access to.

The result of scraping the Schaeffers' web site is this 'one month high-volume earners' table which you can constrain in your mashup.


Scrape Test - Windows Internet Explorer
http://examplemashup.com/scrape.php
Scrape Test
schaeffers research.com
"Thanks for your work and everyone else there at Schaeffer's.....you guys are one of the few analyst groups daring to tell the truth." - D. Aronow, MA
Stock Screen Center
Stock Screen Menu
One-Month High-Volume Gainers
Stocks that have gained 10% or more in the past month with one-month average trading volume at least double the average volume of the past quarter.
Symbol
Company Name
Closing
Previous Close
% Gain
Volume
Quarterly Average Volume
One Month Average Volume
Volume Ratio
Tools
CHNR China Natural Resources Inc. 44.26 11.22 294.5 6394616 429602 1132349 2.64
JRJC China Finance Online Co. Ltd. 40.90 12.92 216.6 4128371 1508651 4297720 2.85
EFUT eFuture Information Technology Inc. 26.40 11.85 122.8 5591513 507017 1384960 2.73
FCPO Factory Card & Party Outlet Corp. 16.31 7.53 116.6 11369 38057 88027 2.31
ASTI Ascent Solar 16.18 9.25 74.9 389375 484697 801522 1.65

Schaeffers research compiles very useful financial statistics on companies, such as their one month high-volume gainers.

code to grab some of the best commentaries to add to your news and charts.

For starters, there's Jim Kramer's Mad Money feed (**http://tinyurl.com/2jwaun**), or Stock Guru (**http://tinyurl.com/yru3ry**) but you can Google any number of stock market reports which have RSS feeds. Here are a few to help get you started. Firstly there's Motley Fool (**www.fool.com**), Nasdaq (**http://nasdaq.com**), CNN Money (**www.cnnmoney.com**) and Quote.com (**www.quote.com**). For more advanced charts, try Stockcharts.com (**www.stockcharts.com**) and also Bigcharts.com (**www.bigcharts.com**).

And if that's just not enough for you, why not try adding some video to your mashup pages? Thankfully, YouTube offers a fully customisable RSS feature so you can use the following feed to catch up on the latest videos posted using the tag 'finance', for example: 'www.youtube.com/rss/tag/finance.rss'. In each of the link elements of each item of the feed you'll find the YouTube URL for each video.

WHAT IF THE SITE DOESN'T HAVE AN RSS FEED?

Most popular sites these days have RSS feeds which you can pull up in your reader, or even subscribe to, so that you are notified whenever there are changes or updates. Or, you can usually read these feeds directly in your browser if you prefer.

But even the best sites can't offer RSS for all the data they provide in HTML, and many useful and informative sites aren't yet supporting RSS.

In these instances, if we want to use any of their data, we have to resort to a method called 'screen scraping' whereby we download the full HTML of a web page and then extract only those items which are of use to us.

The work involved in doing this is a little more intricate than parsing and extracting RSS feeds, but it's not that complicated either, and if you follow the examples given in this article you'll soon be able to make mashups of any types of data from almost any type of web site.

As well as sites that provide up-to-the-minute and historical chart prices, graphs and news, there are others that provide more in-depth financial analysis and which also offer you some very useful information you might wish to include in your stock market mashup.

AND IF THAT'S JUST NOT ENOUGH FOR YOU, WHY NOT TRY ADDING SOME VIDEO TO YOUR MASHUP PAGES?

For example, the Schaeffers Research web site at **www.schaeffersresearch.com** abounds with useful data such as their 'One month high-volume gainers' chart. These are stocks that have gained 10 per cent or more in the past month, with a one month average trading volume at least double the average volume of the past quarter.

In other words they are hot stocks and we might like to be kept informed of which ones are considered hot by Schaeffer. So let's navigate to that page on their site, at **www.schaeffersresearch.com/streetools/stockscreen.aspx?topfactor=mhvg** and see what we find.

Straight away it's good to notice that the data we are looking for is held in a table. That's going to make it relatively easy for us to extract it onto our mashup page. To find out how, we need to view the document source to find some unique HTML at the start of the table and a second unique string after it.

A few seconds' perusal of the HTML shows that the table begins with the first two lines below and that immediately following the table is the last line:

```
<table cellspacing="0" cellpadding="2"
rules="all"
<span id="lblTest">
```

A quick search confirms that both of these

SPOTLIGHT ON... MASHUPS

The most well-known types of mashup are those which use Google Maps to overlay other information such as houses to rent or for sale, or for other purposes where geographically relevant data works well when displayed on a map, such as the locations of visitors to a web site and so on.

The internet has now evolved from a widely distributed collection of discrete web pages into an interwoven mass of data. It's no longer always possible to determine where the different parts which make up a web page come from. The news you read will have been syndicated to Google, Yahoo! and other places by Reuters or the Associated Press; videos may well be stored at YouTube; photos could be located on Flickr and so on.

It could be argued that the whole web is becoming one large mashup. Just what effect that will have on copyright owners and copyright law remains to be seen.

SPOTLIGHT ON... SCREEN SCRAPING

Screen scraping is a technique in which a computer program extracts data from the displayed output of another program. The key element that distinguishes screen scraping from regular parsing (such as from an RSS feed) is that the output being scraped was intended for final display to a human user and not for input to another program.

A major downside to screen scraping is that these displays change structure frequently and this will often break a screen scraping program. This means their management is usually high-maintenance.

Screen scraping is now so common that there are sites that provide automatic software for it.

strings are unique to the document, so we are now ready to write some code.

What the code must do is fetch the above page, find the two strings and return only the text between them (including the contents of the first string). Here's some code that will do this:

```
$segment=scrape("http://www.schaeffersresearch.com/streetools/stockscreen.aspx?topfactor=mhvg"," <table cellspacing="0" cellpadding="2" rules="all"','<span id="lblTest">'); $segment=str_replace('/streetools','http://www.schaeffersresearch.com/streetools',$segment); $segment=str_replace('<img src="images/','<img src="http://www.schaeffersresearch.com/streetools/images/',$segment);
echo "<head><title>Scrape Test</ title></head>\n";
echo $segment;
function scrape($url,$head,$tail)
{
$html=file_get_contents($url);
$j=strpos($html,$head); $k=strpos($html,$tail);
return substr($html,$j,$k-$j);
}
```

The first line calls the function 'scrape()', passing it the URL of the document to fetch the two unique strings we isolated earlier. This function then determines '$j', the offset byte at which the first string is found, and '$k', the offset of the second occurrence.

Having done this it returns only the contents of the document, starting at '$j' and up to '$k'.

Next there's a little bit of tidying up to do because the Schaeffers web site makes use of relative URLs, which must be qualified into absolute ones if the links in the scraped code are to remain functional.

Therefore all occurrences of the folder '/streetools' are changed to 'http://www.schaeffersresearch.com/streetools' and all '<img src="images/' are replaced with 'http://www.schaeffersresearch.com/streetools/images/'. Having done that, the above code simply displays the newly-scraped table which will fill the whole browser window unless it is constrained inside a smaller table.

Now let's look at another web site we could use in our mashup, **www.dailystocks.com**. Among the myriad pages of useful financial information there, you can find out the top 50 New York Stock Exchange advancing or declining stocks, and so on. For this example we'll go for the advancing ones at the URL **http://quote.dailystocks.com/nysepa.asp?code=xdaily**.

Again, we can quickly isolate two unique strings for the start (the first two lines of code below) and end (the last line) of the table containing the data we want:

```
<TABLE WIDTH="100%" BORDER=0 CELLPADDING=1 CELLSPACING=1>'
<p><p><table width=600
```

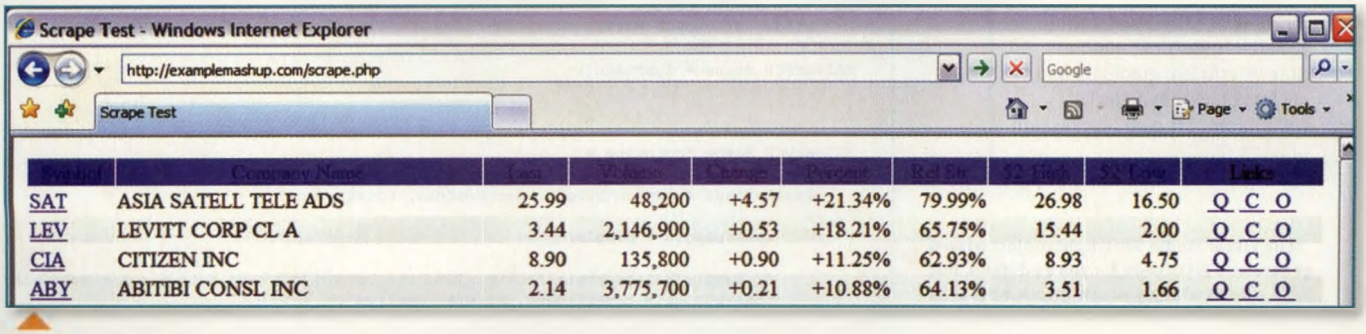
So, the line to call up function 'scrape()' with would be:

```
$segment=scrape("http://quote.dailystocks.com/nysepa.asp?code=xdaily",'<TABLE WIDTH="100%" BORDER=0 CELLPADDING=1 CELLSPACING=1>', '<p><p><table width=600');
```

Fortunately, this table uses absolute URLs for its links, so there's no need to qualify any relative ones and we can use the scraped table as is.

BRINGING IT ALL TOGETHER

Using the RSS reading tips and the screen scraping techniques outlined in this article, you'll now be able to fetch data from almost any type of site and combine and repurpose it for your own mashups. The tables extracted via screen scraping in this issue can be constrained within new tables or using CSS to format them to our preferences, and then the RSS feeds and graphs can be brought in at appropriate places in your mashup.If you use these techniques to build your own mashup, or have written any other interesting solutions to aggregating web data, please tell us via our web site **www.apcmag.com** — if we get a good selection we'll cover them in a follow-up article.



Symbol	Company Name	Last	Volume	Change	Percent	Rel St	52 High	52 Low	Links
SAT	ASIA SATELL TELE ADS	25.99	48,200	+4.57	+21.34%	79.99%	26.98	16.50	Q C O
LEV	LEVITT CORP CL A	3.44	2,146,900	+0.53	+18.21%	65.75%	15.44	2.00	Q C O
CIA	CITIZEN INC	8.90	135,800	+0.90	+11.25%	62.93%	8.93	4.75	Q C O
ABY	ABITIBI CONSL INC	2.14	3,775,700	+0.21	+10.88%	64.13%	3.51	1.66	Q C O

Here is a table showing the top 50 advancing NYSE stocks that have been scraped from the website *http://quote.dailystocks.com*.

Coding in Silverlight

Watch out Adobe: here comes Microsoft with new technology designed to bring together design and development. *Paul Hudson* checks it out.

REQUIREMENTS

- **VISUAL STUDIO**
  This is where you write your code, as opposed to a combined interface like Adobe Flash.
- **SILVERLIGHT**
  Download it at *www.silverlight.net*.

IN THIS SERIES

- **Part 1 – January '08**
  An introduction to Silverlight, including a simple project to demonstrate the basics.
- **Part 2 – February '08**
  We'll be integrating Expression Blend to add more powerful animations and design.

INSIDE INFO

- The home of the Silverlight project has downloads, a reference guide, tutorials and lots of examples of work done by other people. **www.silverlight.net**
- The home of the Moonlight project, aiming to port Silverlight to Mono and thus to all sorts of non-Windows/OS X platforms. **www.mono-project.com/moonlight**
- Microsoft's Expression Blend toolkit lets you drag and draw interfaces, gradients and vectors quickly and easily. **www.microsoft.com/expression**

Microsoft hopes for Silverlight to replace Adobe Flash in the market for browser-based interfaces that are made up of more than some HTML and CSS.

Microsoft is already working on the next version of Silverlight (see page 113), but for now we're interested in the current release of Silverlight, and before we bore you with talk about what Silverlight can do and what it's already being used for, we'd like to jump in with a quick-start project so you can see Silverlight for yourself.

Don't worry — it won't include any code yet, because Visual Studio will generate it all for us. To get started you need to download the Silverlight plug-in for your browser (yes, this works on Firefox too) from **www.tinyurl.com/2qx853**, as well as the Silverlight 1.0 SDK from **www.tinyurl.com/2xygdh**. The latter download is particularly important for our purposes, because it installs a project wizard into Visual Studio that we'll be using for this first test project.

Once you're all installed, go to File > New > Project, choose Silverlight from the list of project types, then choose Silverlight JavaScript Application. Name it SilverPCP and click 'OK'. Here's where you'll get your first shock: Visual Studio has generated an awful lot of code for you, which will probably make you think that Silverlight is far too complicated to be worth bothering with.

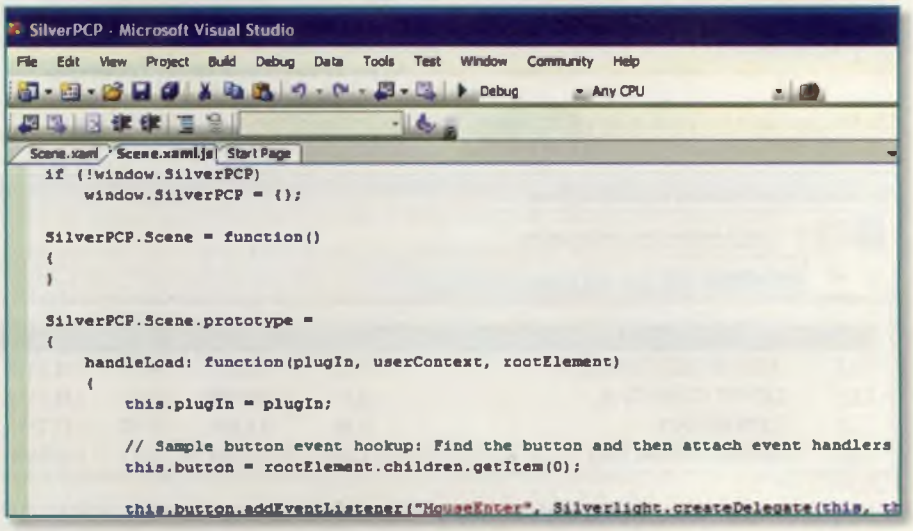
But before you run off to try another of Microsoft's new ideas, try hitting F5 to run the project. All being well, your default browser should launch, a balloon will pop up in your system tray to say that the ASP.NET Development Server is running on some random, high-numbered port, and you'll see something akin to the following: a grey button with 'Click Me' on it. When you click it, a message saying 'clicked' will appear. Not that impressive really, given the seemingly vast amount of code required to make that happen, but have patience — it will become clearer soon.

DIGGING DEEPER

OK, so Visual Studio appears to have given us five separate code files to work with: Default.html, Default.html.js (hidden as a little child node under Default.html), Scene.xaml, Scene.xaml.js (again, hidden as a child node under Scene.xaml) and Silverlight.js.

That last file can be safely ignored: it's a piece of JavaScript helper code designed to make Silverlight applications work more smoothly if a user doesn't have the Silverlight plug-in installed. The Default.html file is the Silverlight container page, in the same way that you embed Flash movies into normal HTML files. Near the top of this file you'll see that it needs to read in all the JavaScript code:

```
<script type="text/JavaScript" src="Silverlight.js"></script>
<script type="text/JavaScript" src="Default.html.js"></script>
<script type="text/JavaScript" src="Scene.xaml.js"></script>
```



The Visual Studio Silverlight project wizard generates a lot of code for you by default, but don't worry, you can ignore most of it!

The Silverlight home page has links to all the latest public Silverlight apps from Microsoft and other developers and is full of ideas for things to make.

HANDY TIP

In the spirit of keeping things thin and light, you might be tempted to dispose of much of the helper code that Visual Studio bundles along with its project wizard output. But stop right there: this code is important because it's designed to cope with people who (gulp) don't have Silverlight installed. Given that Flash has a much larger install base, this kind of helper code is particularly important: most people don't have Silverlight installed, so unless you fancy writing your own detection code for the plug-in, you're best just sticking with the one that Microsoft offers.

SPOTLIGHT ON... SILVERLIGHT IN C#

JavaScript is a well-known and well-adopted language, which made it the perfect choice for Silverlight 1.0. But the real power is coming in Silverlight 1.1, as it introduces C# for code behind files, giving you access to a large chunk of the .NET Framework. That means you'll be able to use things like XML parsing, sockets, regular expressions and more, without losing the ability to let artists design the GUI while you work on the code.

But the twist comes shortly after:

```
<div id="SilverlightPlugInHost"> <script
type="text/JavaScript">
createSilverlight();
</script>
</div>
```

Yes, that's right: no more messy <embed> or <object> elements in your HTML: Silverlight goes directly into elements on your page. The createSilverlight() function is inside the Default.html.js script, and it sets up Silverlight for action by creating a movie, loading your interface, assigning its rendering to the in the HTML file and setting it up to start. So you can forget Default.html and Default.html.js for now (at least until you want to customise the interface around your Silverlight object).

That just leaves us with Scene.xaml and Scene.xaml.js. If you've done any .NET 3.0 programming, XAML (pronounced 'zammel') may have already scarred you. If not, you've been lucky so far, but now it's time to meet one of the most cunningly over-engineered pieces of software since Drupal.

XAML is an XML system for specifying user interfaces, rather like Glade is for Linux/Gnome applications. Except XAML is designed to let you specify precise artwork as well as simple buttons and text boxes, including such niceties as gradients, fills and even animation. On the plus side this makes XAML very flexible, as the XML makes it open, and the sheer number of features means it can solve most people's problems. But on the downside, writing XAML code can feel like you're creating Flash movies by poking random binary data into RAM.

Fortunately, Microsoft realised how ugly XAML code was and created Expression Blend — think of it as the equivalent of the Adobe Flash GUI. But before you sigh and wonder why Microsoft would want to cripple developers with the same restrictive interface as Flash, here's the neat trick: Blend can work on your XAML code without monkeying with the JavaScript code behind it, meaning artists can build beautiful designs with smooth animations, movies and attractive user interfaces using Blend, while you sit in front of Visual Studio tying things together.

ON THE PLUS SIDE, XAML IS FLEXIBLE, AND THE SHEER NUMBER OF FEATURES MEANS IT CAN SOLVE MOST PROBLEMS

All that XAML code can be split into two major parts: <Canvas.Resources>, which contains animation information, and <Canvas>, where things are actually drawn. Yes, the root element is actually also a <Canvas> — you can nest canvases if you want to. In this example, Visual Studio has created three rectangles and a textbox. Each of the rectangles has RadiusX and RadiusY attributes set, which gives them rounded edges, but you'll notice the third rectangle has an x:Name property that uniquely identifies it in the scene. If you look at the animation block in <Canvas.Resources>, you'll notice that the four animations — mouseEnter, mouseDown, mouseUp and mouseLeave — all have Storyboard.TargetName set to the name of that third rectangle, which means that's what they animate. Each animation block contains something like this:

```
<ColorAnimationDuration="00:00:00.25"
To="#3DFFFFFF" ... />
```

That means the colour of the targeted item will be changed to #3DFFFFFF (alpha, red, green, blue), when originally it was #00FFFFFF. As that's in the mouseEnter animation, you can guess that normally the third rectangle is invisible (00 for the alpha value), but when the mouse moves over it, it's animated to be visible (3D for the alpha value), so the button looks highlighted.

Now all we're left to examine is Scene.xaml.js, but here's where we can say goodbye to designers because now it's code, code, code...

GET YOUR HANDS DIRTY

As you will have guessed from the file name Scene.xaml.js, Silverlight uses JavaScript as its programming language. This is a bit painful because JavaScript's best-known feature as far as we can tell is that it's rubbish. But Silverlight gives us JavaScript or nothing, so we have little choice but to grumble and hack our way through its annoyances.

Anyway, along with a large chunk of XAML, Visual Studio has also provided us with 50 or so lines of JavaScript that define the class SilverPCP.Scene — although remember that JavaScript has no 'class' keyword, so expect the usual flagrant abuse of the 'function' keyword instead.

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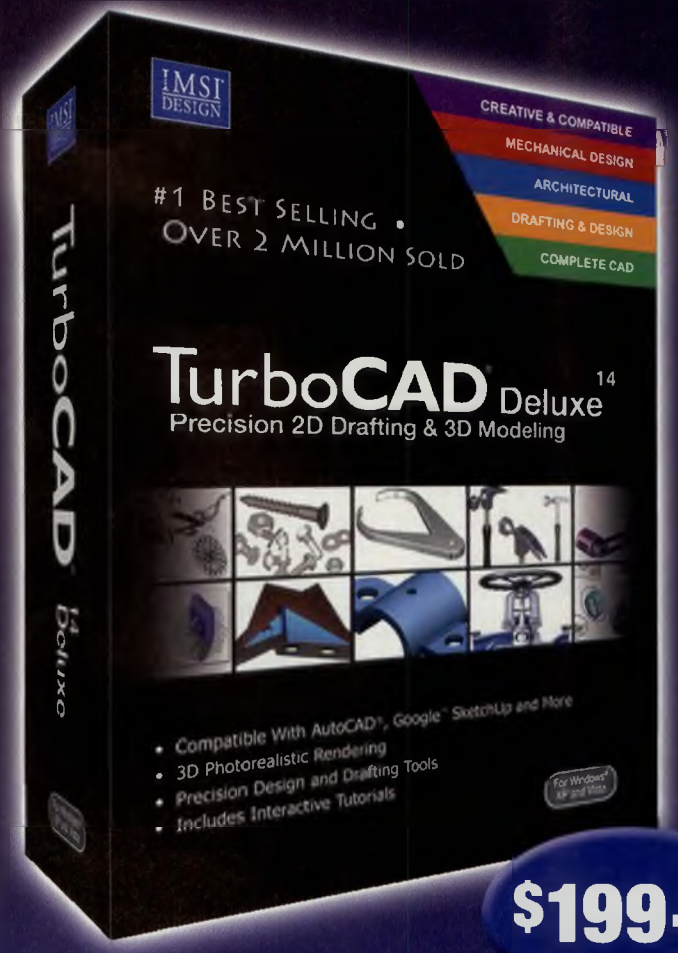

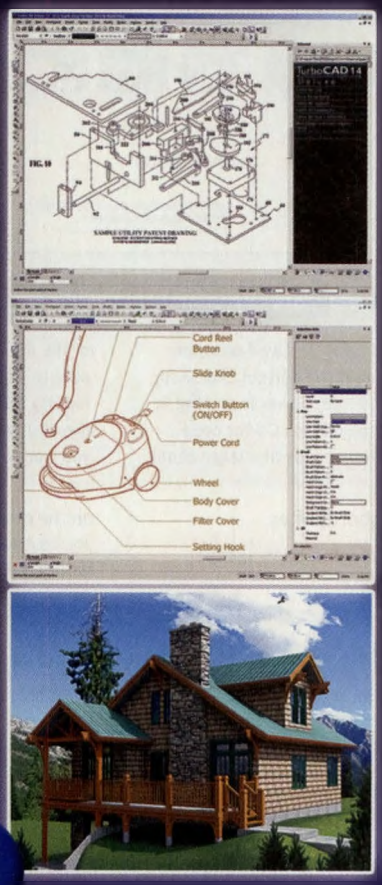

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HANDY TIP

Silverlight 1.0 is designed to work out of the box with Visual Studio 2005, but if you want to try 1.1 you need to upgrade to Visual Studio 2008. This is a bit painful: not only because VS 2008 isn't due out until sometime in 2008, but also because it seems a bit much to ask you to upgrade your whole IDE just because you want to try some new technology. Well, fair enough, but there's a neat workaround: Microsoft has provided Virtual PC images for beta versions of Visual Studio 2008 for trial purposes, and you can use those with the Silverlight 1.1 SDK.

The Halo 3 preview system was made using Silverlight, allowing for WMV video embedded in the page, as well as cool effects and streaming.

The basic clock application links out to normal JavaScript functions and back into XAML and Silverlight.

Arguably, JavaScript's one redeeming feature is its ability to modify class definitions on the fly, using the 'prototype' property, and you'll see this used a great deal in Silverlight to build in functionality where none previously existed. In this example code, it sets up handleLoad(), handleMouseEnter(), handleMouseDown(), handleMouseUp() and handleMouseLeave(), each of which gets called as appropriate from other parts of the program.

But here things edge a smidge towards spaghetti code, at least when you're just starting to learn the program. Here's how all these things tie together:

- Your XAML code contains your scene, which includes animations.
- Each animation has a specific name, eg mouseDown.
- Default.html.js sets up Silverlight so your handleLoad function is automatically called when the scene is loaded.
- The SilverPCP.Scene class in Scene.xaml.js is the code back end to your XAML scene, which means references to 'this' are references to the scene.
- The handleLoad() function snags a reference to rootElement. children.getItem(0), which will return the nested <Canvas> element and store it as the button property in the scene.
- The list of addEventListener() calls attach functionality to the events MouseEnter, MouseLeftButtonUp, MouseLeftButtonDown and MouseLeave — these names are defined by Silverlight, and there are others such as GotFocus, KeyDown and MouseMove.
- Each addEventListener() call uses the method of calling createDelegate() to attach a local JavaScript function to the events.
- As each JavaScript function is called, it receives a handle to the scene as well as any special event arguments (what key was pressed or where was the mouse moving).
- Using the handle to the scene, it calls findName() to find the name of a specific XAML element in the XAML scene. For example, using findName("mouseDown") will look for XAML objects called mouseDown.
- That takes us back to the top of this list: we now have a handle to that XML mouseDown animation, and can call its begin() function to start the animation.

Painful? Just a tad. Did we say that JavaScript was rubbish? Oh well — with that out of the way, we can create something of our own.

TICK-TOCK CLOCK

Open up your XAML file and delete everything between the opening <Canvas> and the closing </Canvas>. Now we're going to replace it with some text. Your basic text in XAML is done through the <TextBlock> element, so set your XAML file to be this:

```
<Canvas xmlns="http://schemas.microsoft.com/client/2007" xmlns: x="http://schemas.microsoft.com/winfx/2006/xaml">
<TextBlock x:Name="TheTime" Text="Loading..." FontSize="16"></ TextBlock>
</Canvas>
```

Don't run that just yet — the code behind this has lots of references to the old objects, so we need to clean that out first. We're going to write some code to turn that TextBlock into a ticking clock, and we're going to do so using plain old JavaScript that has nothing to do with XAML or Silverlight. Edit your SilverPCP.Scene class to this:

```
SilverPCP.Scene.prototype =
{
handleLoad: function(plugIn, userContext, rootElement)
{
this.plugIn = plugIn;
text = rootElement.findName("TheTime");
doTimeUpdate();
}
```

That pulls out the basic TextBlock element we defined in the XAML and stores it in the 'text' variable. That text variable is nothing special — it can be accessed by any JavaScript running on the browser. And that's where the doTimeUpdate() function comes in: you could define it anywhere you want, as long as it's read in by the same file that reads this Scene.xaml.js file. Let's say you've put doTimeUpdate() into the same file as the above code as a standard JavaScript function. Given that it needs to set the time, then re-call itself in a second to show updated information, doTimeUpdate() should look like this:

```
function doTimeUpdate() {
var currentTime = new Date();
var hours = currentTime.getHours();
var minutes = currentTime.getMinutes();
var seconds = currentTime.getSeconds();
if (minutes < 10) minutes = "0" + minutes;
if (seconds < 10) seconds = "0" + seconds;
text.Text = "Time now is: " + hours + ":" + minutes + ":" + seconds;
text.FontSize += 1;
window.setTimeout("doTimeUpdat e()", 1000);
}
```

Note that we've slipped in a change to the FontSize property with every tick — for added excitement! What we now have is a Silverlight class calling out into normal JavaScript, and that same JavaScript calling back into Silverlight to manipulate the XAML GUI. And it works! Next issue we'll be integrating Expression Blend to add more powerful and interesting animations and design. Until then, play with XAML using the Visual Studio code completion — it's surprising what you can achieve by fiddling around!

downtime

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Edirol R-09

Good news for aspiring singers and musicians — not all digital recording devices will do your head in. Take this handheld from Edirol, which looks like a simple note taker but is designed with pro-sound results in mind. It's not multi-track like last month's Boss Micro BR, but it does have a quality inbuilt mic and lets you record at 24-bit and also MP3.

CONTACT Roland
ONLINE www.rolandcorp.com.au
PRICE $795
VERDICT ★★★★☆

Freedom Mini GPS

A GPS unit attached to your keychain? Have no fear, this isn't a wide-screen LCD panel you'll be lugging around. The Mini GPS is a little contraption that works with popular GPS mapping software such as BlackBerry Maps, Google Maps and Navman devices. It weighs 30g and tracks up to twenty satellites. Just don't lose your keys.

CONTACT Anyware
ONLINE www.anyware.com.au
PRICE $189.95
VERDICT ★★★½☆

Logitech QuickCam Pro 9000

We're raving about Logitech's new line of webcams, which have much better resolution and picture quality, at VGA and 30 frames per second. The Pro 9000 has a swivel base and rests on your monitor — it has auto-refocusing, Carl Zeiss lenses, and here's the key — higher-quality video chat with the new version of Skype.

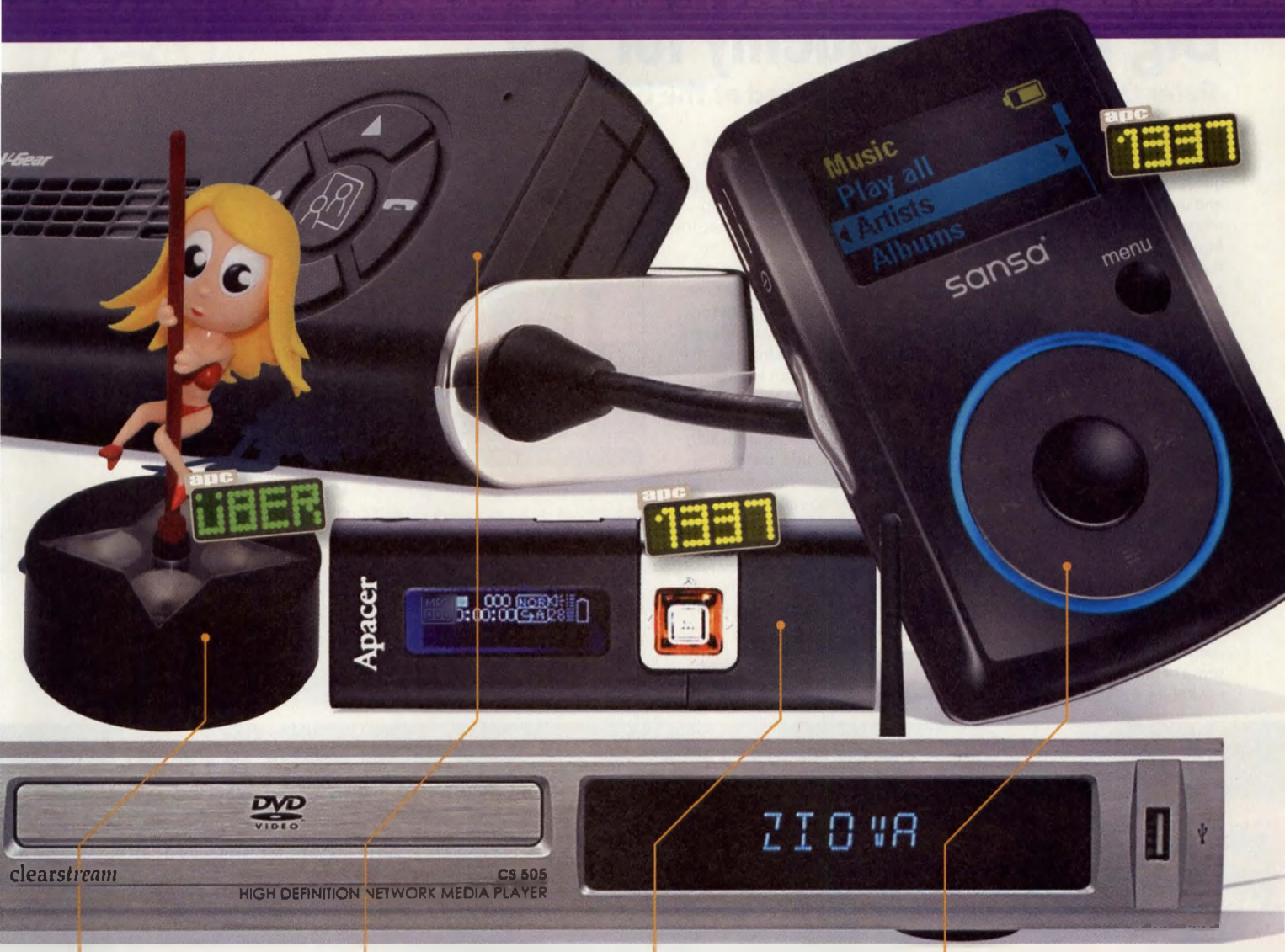
CONTACT Logitech
ONLINE www.logitech.com
PRICE $149
VERDICT ★★★★½

Ziova Clearstream CS505

Ah, you've got to love digital set-top box makers — not content to simply make the box and be done, they continue to pump out firmware upgrades. The CS505 now has a jukebox feature for creating playlists — and lets you save favourites on the home screen. What is it? A DVD player that also connects your PC and TV for movie playback wirelessly.

CONTACT Ziova
ONLINE www.ziova.com
PRICE $599
VERDICT ★★★½☆

apc uBER Super cool apc 1337 Very cool apc n00b Uncool



USB Pole Dancer

It's been a while, but we've found another quality USB device to add to our growing collection — and she's all woman. Office workers will look twice at the 'USB Pole Dancer' doing her thing on your desk (they may also complain). Plug her in, load the software, and gasp in awe as the dancing queen dances to the rhythm of you typing up another TPS report.

CONTACT Gadget King
ONLINE www.gadgetking.com.au
PRICE $39.95
VERDICT ★★★★½

V-Gear TalkCam Office

In our quest for the digital lifestyle, we often refer to *Minority Report* as a benchmark for modern communications. The V-Gear TalkCam Office isn't quite *Minority Report*-standard, but it's better than an ordinary webcam for feeling like we're cutting edge. The package combines a webcam and handheld phone, letting you chat privately or use the system for conferencing.

CONTACT Anyware
ONLINE www.anyware.com.au
PRICE $149.95
VERDICT ★★★½☆

Audio Steno AU 240

We've always wondered why there isn't more tech gear that comes in leather. Obviously, great minds think alike, as Apacer has seen the light and invented this leather-feeling MP3 player. It may look like an ordinary MP3 player, but, no, the AU 240 is in a class of it's own, thanks to the smooth 'leather finish'. Is it actual leather? We're not sure.

CONTACT Apacer
ONLINE http://ap.apacer.com
PRICE $45 (1GB)
VERDICT ★★★★☆

Sansa Clip MP3 player

Good for a jog around the park or the bus to work, these little clip-on MP3 players come with 1 or 2 GB storage — which fits our Roachford greatest hits collection just fine thanks. Sandisk say it's smaller than a matchbox, and for that you get 40 FM station presets and rechargeable battery. All up, one of the premium players for the non-iPod crowd.

CONTACT Sandisk
ONLINE www.sandisk.com.au
PRICE $79 (1GB)
VERDICT ★★★★☆

Big Brain Academy for Wii

***Peter Dockrill* hides his report card at the bottom of his bag.**

Nintendo's forays into 'alternative' branches of gaming show no signs of abating, and this latest family-friendly release offers a challenging set of brainy-themed mini-games which, for a while at least, will suit players of all ages. Some readers may be familiar with the DS series, Dr Kawashima's Brain Training, in which players work at bettering their scores (and thus improving their 'brain age') in a variety of cerebral puzzles. Big Brain Academy plays along similar lines. The jury is still out on the 'science' here, but the point is to have fun, and Big Brain Academy succeeds in this.

The game offers various single and multi-player modes, and the mini-games are divided into five categories: identity, memorise, analyse, compute and visualise. The games themselves are enjoyable, particularly in multi-player, and the sense of humour and zaniness are rewarding and keep things exciting.

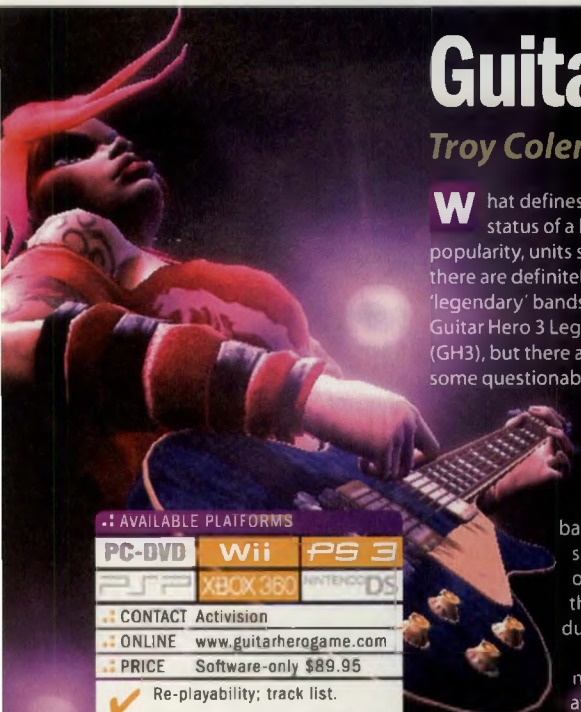
However, the real limitation is the amount of content that's on offer. With only 15 main games to play and practise, you'll end up seeing most of what's available in about an hour — after that, the only thing to really keep you coming back is trying to get past the harder difficulty settings (or fooling around with multi-player), and whether this will be enough for anyone apart from younger gamers is questionable.

All up, we were a bit undecided about Big Brain Academy for Wii. As a standalone title, the game just doesn't offer enough variety or scope to keep you interested for long enough. However, as part of Nintendo's 'Big Value Pack', which includes a Wii Remote (for only $10 more than the Remote by itself), Big Brain Academy is a real steal: a nice slice of puzzle-based entertainment that should set the scene for much enjoyment and competition in the living room.

How do you rate your basic arithmetic? What about image analysis? Shape-making? Aargh!

AVAILABLE PLATFORMS: PC-DVD, Wii, PS3, PSP, XBOX 360, DS

CONTACT	Nintendo
ONLINE	www.nintendo.com.au
PRICE	$69.95; $79.95 with Remote
✔	Great value in the 'Big Value Pack'.
✖	Not so much as a standalone title.
VERDICT	★★★☆☆



Guitar Hero 3 Legends of Rock

***Troy Coleman* rocks out with his Gibson out.**

What defines the legendary status of a band: history, popularity, units shipped? No doubt there are definitely a handful of 'legendary' bands featured in Guitar Hero 3 Legends of Rock (GH3), but there are, for our taste, some questionable inclusions as well, during the titles re-telling the timeless tale of guitarist meets band, band makes it big, signs record deal only to find out they have been duped by the Devil.

Three game modes are available: the fun for the whole family Career, solo play and co-op; two players. Then there's Battle mode — an arcade-style-two-player-guitar-solo-duel-to-the-death (just like the end of Crossroads but without the whinging kid). Hitting the correct sequence of notes let's you inflict savage guitar attacks which activate when you tilt the guitar upwards. Some moves include broken strings, Difficulty up, Whammy Bar, but the most diabolical is Lefty/Righty flip where the fret board is mirrored forcing the player to change hands. Progression through the Career mode also features duels, but instead of out rocking your mum, Tom Morello, Slash and the Devil take up the challenge.

The Stones, Rage Against the Machine, Black Sabbath and Iron Maiden are among over 70 tracks featured, but only 46 playable through the main single-player set list. Nothing is more soul-destroying than having content available through forced avenues, in this case, on/offline multi-player.

Nothing gets in the way of rocking out like being tethered, so the wireless Gibson Les Paul guitar is a welcome sight. Is your boss about to catch you rocking out during work hours? Never mind, the neck can be disassembled from the body of the unit for easy hiding/storage. But really, power suit, power lunch, power chord... it just works.

Graphical improvements have been made, while still retaining the cartoon appeal of the previous versions. Motion-capture technology was used for movement for the boss fight and other player movements and animations have been refined for a more realistic look. One toon in particular has been given two realistic/inflated looks, every time she jumps to the music.

Three final words: Dragonforce on expert.

AVAILABLE PLATFORMS: PC-DVD, Wii, PS3, PSP, XBOX 360, DS

CONTACT	Activision
ONLINE	www.guitarherogame.com
PRICE	Software-only $89.95
✔	Re-playability; track list.
✖	Forced content.
VERDICT	★★★½☆

Dwarf Fortress

Alex Cox keeps ASCII gaming alive through the winter.

Unib Bomrekfesh is sick. He's been living, working and farming within the confines of a hastily chipped-out fortress for the past five years, and he's developed something of an allergy to the sun. His friends can't let him back into their outpost because his persistent vomiting is attracting the attention of some angry-looking elephants. They can, however, pull a few carefully planned levers and unleash a devastating pyroclastic flow. But that will wipe out everything outdoors, including their only supply of wood, and they've made an agreement with the Elves to protect the environment. Bugger.

Dwarf Fortress, then. It's deep. The laziest analogy would be a cross between Nethack and Dungeon Keeper, but it's hard to come up with anything more apt. You can choose to play it as a traditional roguelike if you're so inclined, or you can plump for a more resource-management slant in Fortress mode. The latter, the most comprehensive and advanced mode in the game, sees seven dwarves (the natural Dwarven number) dumped next to a cliff face with nary more than a pick-axe and some basic food supplies, with the mission of surviving the winter.

You're faced with numerous irritatingly detailed tasks when caring for your Dwarven populace, all the way from properly storing food and disposing of rubbish, through masterminding complex traps, to building and operating indoor flood-plain farms. No other ASCII game, not even Nethack or its ilk, gives you such a broad range of options or gets you quite so attached to the characters within.

AVAILABLE PLATFORMS: PC-DVD, Wii, PS3, PSP, XBOX 360, NINTENDO DS

CONTACT Bay 12 Games
ONLINE www.bay12games.com
PRICE Free

✔ It's free!

✖ Initially seems almost innavigable.

VERDICT ★★★★☆

It's been said that roguelikes tell the greatest stories in gaming; in this case it's hard to argue. When master fisherdwarf Kogan Ruledrooms gets herself into a 'fey mood' and starts wandering around ignoring your orders before diving head first into the deeply seated lava seam, it would be inhuman not to shed a tear or two.

So here it is. Proof that indie gaming is alive, well and chipping away at the cliff face of big-name publishers. Dwarf Fortress took a two-man team over five years to create, and that concentrated effort means it's consistently fun if you can look past a few rough edges.

Football Manager 2008

Daniel Withers spearheads the Socceroos' charge into Asia.

For a decade, the Football Manager series has been the pinnacle of the sports management simulation genre. Sure, the 2008 installation doesn't include the monumental new features of its predecessors, but bigger is not always better.

That's not to say that FM2008 is last year's game repackaged — the new 'Match Flow' system takes the pressure off game day, with each screen effortlessly following from the previous, and international management has been revamped, adding a new dimension to a previous 'dead-end' aspect of the game.

However, the most notable features in the new game are the smaller ones, such as the option at the start of a season to decide the size of your home pitch, new media questions and commentary lines, increased player instructions and tactical options, the development of last year's feeder club introduction, and the expansion of the confidence screen, where everyone affiliated with the club will tell you how you are handling life in the hot seat.

For those still enjoying 2007, you may not feel compelled to upgrade, but 2008 gives you an updated database complete with all player movements from a typically busy European transfer window. Also, judging by the preview release we received, processing times seem to have reduced and saving is noticeably quicker. Both of these improvements are welcome.

With over 5,000 playable teams from more than 50 countries, Football Manager is a never-ending challenge. Achieved all you can with your favourite club? Try management in frosty Eastern Europe, where the weather means your team cannot play silky football. Or return home to win the A-League championship. The possibilities are endless.

AVAILABLE PLATFORMS: PC-DVD, Wii, PS3, PSP, XBOX 360, NINTENDO DS

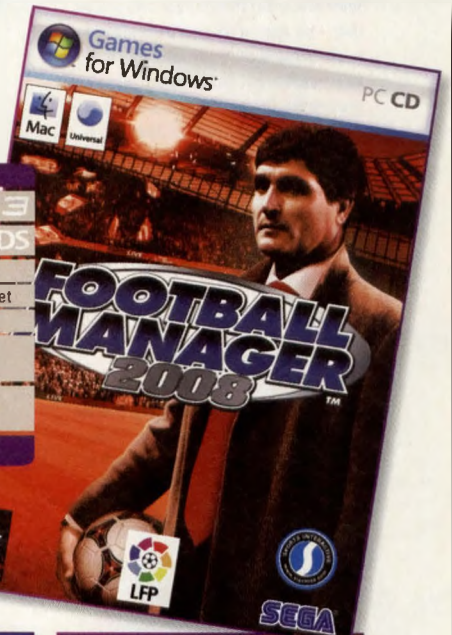
CONTACT Sega
ONLINE fm08.footballmanager.net
PRICE TBA

✔ More Football Manager goodness.

✖ Limited new features.

VERDICT PREVIEW ONLY

Want options? The latest incarnation of the definitive sports management sim gives you even more of them...



HOLY CASH-IN BATMAN!

by Peter Dockrill

My my my. Why, it seems just like yesterday (or *APC* October 2007, page 118, to be more specific) that we were discussing the announcement of LEGO *Indiana Jones*: The Video Game. On that occasion, Chip Chat took the liberty of quietly suggesting that the LEGO Video Game steamroller might do well to consider adapting a few films from the more classic/arthouse tradition (read: *Citizen Kane*, *The Graduate* etc.) And did they listen, dear reader? You bet they did! No sooner has Indy not even hit the shelves yet but with the new year comes the exciting news that, *yes*, LEGO *Annie Hall*: The Video Game will soon be upon us! Reprise the pioneering Woody Allen rom-com classic as neurotic Jewish comedian Alvy Singer, struggling to find happiness and inner peace with the daffy girl of his dreams and... uh, well...

OK, OK, so maybe it's not exactly going down like that. Maybe they still need a little more time to chew the whole avant-garde thing over.

Yeah. Maybe — just for the time being, you understand — they're gonna go with, um... *Batman*. Like *that's* gonna make them a huge wad of cash...

Yes, we're excited by the Dynamic Duplo... but is it art?

i iz chip cat

OK readers, it's time to get serious for a minute and introduce what is quite possibly the most pressing and needy translation project currently underway anywhere on the planet. We present for your immediate attention: the Lolcat Bible Translation Project. Yes, in the spirit of Icanhascheezburger.com and all that – for want of an even truer phrase – 'weird cat stuff on the internet', it's an attempt to put the holy word into the twisted dialect of those cute and capricious web felines (aka. lolcats). If you still don't know what I'm on about, Wikipedia defines the species succinctly as: "Lolcats are images combining photographs of a cat with a humorous and idiosyncratic caption... Lolcats are similar to other anthropomorphic animal-based image macros such as the O RLY? owl, but the cuteness of cats enhances the appeal and increasing prominence of the internet meme." Got all that? So, if you want to help translate the Christian Bible into cutesy cat talk that lookz lark dis, then head on over to *www.lolcatbible.com*. Or get a job.

light up my life

Convergence: it's been the buzz word for years now. Bringing things together so you don't have to carry as much and it's easier to do stuff. Cameras mate with phones and have little camera-phone babies. Ditto with MP3 and media players. GPS devices get in on the act, and the UMPCs in the corner are looking restless. Heck, there's even fridges that connect to the internet (even if no-one's buying them). Before you can say, "Hey Noah, I've got an even better idea," we now have possibly the ultimate converged device... ever. Yes, it's the ciggy pack phone. While all the other posers are talking Next 'g', you'll be sucking down a cool 16 'mg' of your favourite brand. Hey, it might not come with Bluetooth, but you'll settle for Yellow. And who cares if it's only got room for six sticks at a time — you're meant to be cutting down anyway, right? apc

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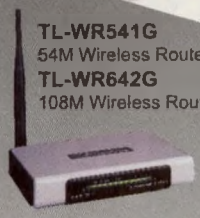

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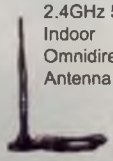

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TL-ANT2406A
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HANDSET CONNECT model

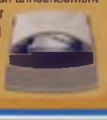
CRU3 is designed to connect to any PABX, COMMANDER, PSTN or VOIP handset. Will then provide High Quality telephone call recording to your PC (PC software provided). Automatic operation with start/stop activation from your PC.

PROFESSIONAL model

CRU4 provides all facilities of the CRU2 Model (it connects to any handset) and in addition allows message(s), or previous recordings to be played back to the other party at any time. Allows notes to be tagged to the recording file.

AUTO DIGITAL ANNOUNCEMENT

Our AUTOMATIC ANNOUNCEMENT DEVICE will Answer your incoming telephone calls, play an announcement and then resume ringing of your telephones. Ideal for announcing change of number or that the call will be recorded.



TELEPHONE LINE DOOR STATION SOLUTIONS

DOOR STATION UNIT

DS2 will RING all of your telephones when a visitor arrives at your front door or gate. Answer to communicate. Open the door or gate with touch tones. Operates on any ordinary single line or multi-line phone system. Requires surface mount or flush mount door phone.

PABX DOOR STATION UNIT

DS4 is designed to be connected to an analogue extension of any PABX, Commander or other multi line telephone system. DS4 goes "off hook" when activated by the door phone. Requires surface mount or flush mount door phone.

DOOR STATION DIAL OUT

Our New DS6 model will RING your telephones and then DIAL OUT to a pre-programmed telephone number if a visitor arrives and you are not home. Requires Surface Mount or Flush Mount Door Phone. Can also connect to a PABX extension.

DOOR PHONES

A range of door phones are available

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FAXSTREAM DUET SWITCHES

Will allow any Fax or Modem device to operate with the Telstra FaxStream Duet service. Provides fully automatic fax reception, just like having a separate line. Two models are available.

INTELLIGENT FAXSWITCH

FAX SWITCH will allow your existing Fax Device to connect to any Single Telephone line or a Multi Line (PABX) phone system, to provide for FULLY AUTOMATIC Fax operation. Will operate with all existing telephones and also an Answering machine.

INTELLIGENT MODEMSWITCH

MODEM SWITCH allows your existing Data Modem Device to connect to any Single Telephone Line, Fax Line or a Multi Line (PABX) phone system, to provide for FULLY AUTOMATIC Dial In & Dial Out Modem Data operation. Models available that allow up to 8 devices on 1 line.

EFTPOS SWITCH

EFTPOS switch will allow your existing EFTPOS device to share any existing Single Telephone Line, Fax Line or a Multi Line (PABX) phone system. Provides automatic connection on dialing. BARGE-IN protection prevents interference when line is in use. Alternative model will allow operation on 2 lines.

MISCELLANEOUS TELEPHONE LINE APPLICATIONS

VOIP SELECTOR

This device will allow you to connect one or more telephones to your TELEPHONE LINE and VOIP LINE. Incoming calls from either line ring on the connected telephone(s). Outgoing calls are automatically DEFAULTED to ONE LINE, but the alternative line can be selected by DTMF code.

TWO LINE SELECTOR

Premium device will allow you to connect one Telephone Device to two Telephone lines (Telstra, Optus, VOIP, PABX etc). Ideal for EFTPOS, Cordless Phones, Modems etc. Additional features are provided, including automatic (or manual) selection of an alternative line if the default line is busy.

TELEPHONE CALL TRANSFER

Easy-Transfer will allow you to answer a call on one telephone and then TRANSFER the call to another telephone fitted to the same li... Also provides INTERCOM facility. Us... your existing telephones.

MULTIPLE NUMBER SWITCH

Operate Two numbers on one line. This device will connect your Multiple number calls to one set of phones or answering machine and your Normal number calls to another set of phones or answering machine.

TELEPHONE LINE ON HOLD SOLUTIONS

DIGITAL ON HOLD

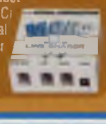
DMS, Australia's Leading On Hold player, is an MP3 based Message On Hold Device, designed to provide the High Quality and High Reliability that is necessary for all telephone On Hold applications. Easy message change provided by replacing memory card.

ELECTRONIC MESSAGE UPDATE

DMC is available with range of optional Automatic electronic message update methods including Email, Modem, FTP and Network IP. We have a National Network of Dealers ready to produce your customized message.

SINGLE LINE ON HOLD

Just plug our MOH Line Sharer into any socket on your single telephone line, connect any audio source (Radio, PC or DMC) and you now have a professional telephone line On Hold facility for your existing telephones.



AUTOMATIC CALL ATTENDANT

Our single line CALL ATTENDANT will answer your incoming calls after 4, 6 or 8 rings, play a greeting & then put your call on hold until you are able to answer. Also provides Message on Hold facility for your single line.

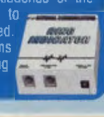
MORE MISCELLANEOUS EQUIPMENT

TELEPHONE LINE SIMULATOR

This TELEPHONE LINE SIMULATOR can be used for testing, programming & demonstration of analogue telecommunications equipment, without the need to use a telephone line and generating costly calls. 4 Models are available.

RING INDICATOR

This device detects incoming calls and will close/open a relay to match the cadence of the incoming ring. Can also be set to close a relay until a call is answered. Ideal for control of external horns or lights to advise of an incoming telephone call.



REMOTE TELEPHONE ACTIVATOR

Call in to Switch ON, Switch OFF or RESET your PC, SERVER or any electrical equipment by telephone line using touch tone commands. RTA connects to any telephone line. Requires PCU accessory. 3 models are available.

POWER CONTROL UNIT

PCU connects direct to the RTA and also to your power socket to allow telephone line dial in switching of the 240V supply connected to your equipment. Easy Plug In User Installation. Controls up to 10 Amps.

DIGITAL AUDIO EQUIPMENT

MESSAGE ON DEMAND

TDS can be programmed with up to 256 MP3 based messages stored on an MMC/SD card, which can be recalled and played by keypad entry or user programmed sequence.

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High Quality BMS holds up to 4GB of MP3 Music Messages on a SD Flash Card. Plays Messages at user set intervals. Powerful internal amp will allow direct connection of up to 8 speakers. Line Level output is also provided. Has encryption facility.

TALKING DISPLAY UNIT

TDU will play 1 or more pre-recorded messages as soon as it is triggered by a movement sensor, a switch, or at a preset time interval. Ideal for Product Promotions, Product Information, Message Warnings etc.

MULTIPLE INPUT UNIT

MIU will allow for up to 12 separate movement sensors or switches to be connected to the TDU. Each sensor triggers its own unique message, output via any 8 ohm unpowered, powered or amplified speaker.

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Cat 2929

Cat 23025

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2685-1	USB to Parallel - Centronics	$35
2920-1	USB to Serial (RS232) 1 Port	$59
2929-1	USB to Serial (RS232) 8 Port	$459
2853-1	USB to RS422/485 1 Port	$249
2907-1	USB to RS422/485 4 Port	$560
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Cat 11667

Cat 11668

Cat 11657

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11659-1	KVM Switch 4 Port with Cables & Audio - USB	$135
11657-1	KVM Switch 16 Port – PS/2	$799
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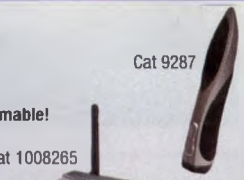
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1300 658 600 | **www.csw.com.au**

NEC Versa E6300 Notebook Bundle

Phenomenal capabilities with premium class multi-functionality and top-notch design, the NEC VERSA E6300 is a 14.1" designer series notebook, bringing refreshing Audio, Visual & Touch experience like never before. Embedded with the latest Intel Centrino Duo Processor Technology.

- Intel Core2 Duo 1.5GHz
- 1GB Memory
- 120GB Hard Drive
- DVD Burner
- Integrated Webcam
- 14.1" WXGA Screen
- MS Windows Vista Business

BUNDLED WITH

- 160GB Maxtor Hard Drive
- Extra 1GB Ram (Total 2GB)
- Targus Atmosphere Notebook Case
- CA Internet Security Suite Plus 2008 with $60 Cashback*

SAVE* 35%

*See www.csw.com.au/promotions

You Pay $1346

$1286 After $60 Cashback

SAVE $721 off RRP

WebCode: NEC0021

Corel Photo and Video Editing + DVD Authoring Bundle

SAVE* 50%

Easily produce Professional looking photos, videos, slideshows and DVDs for all your Christmas family memories with this great value bundle featuring Corel Paint Shop Pro Photo X2 and Ulead Video Studio 11.5 Plus.

Great Christmas Gift

$199

SAVE $199 off RRP

WebCode: COR0103

Microsoft Office 2007 Pro Academic plus Microsoft Wireless Notebook Optical Mouse 3000

A Hot Bundle combining Microsoft's super value Office Suite featuring Word, Excel, PowerPoint, Publisher, Access & Outlook with Business Contact Manager plus a practical optical mouse that features a tiny snap-in receiver that plugs into your notebook when you're ready to work, and snaps into your mouse when you're on the go.

$275

SAVE $73 off RRP

WebCode: BUN0035

Better prices to you through our innovative, efficient business model and buying power.

Product information and real time availability of 18,000+ products online and 200+ leading brands

Friendly and helpful staff you can rely on

Fast and reliable same day dispatch

Black Tie Service Plain Wrap Prices

*Saving based off total RRP after cashback where applicable.

City Software & CSW-IT

Serving Australian Homes and Businesses for 16 years

Simon Feigl
Marketing Assistant

We pride ourselves in being able to offer two things that often contradict each other – Great Service and Great Prices. At City Software, we like to call it Black Tie Service at Plain Wrap Prices. Whether you are looking to have the latest colour laser printer delivered to your door, or to simply pop in to one of our stores to pick up an Internet Security Suite, our friendly hard-working staff will be happy to provide a speedy service at unbeatable prices.

To make it even easier for you to buy, we also have a NEW-LOOK online store with product information on over 18,000 products. Simply browse for the best solution for your needs and order through our sophisticated and user-friendly system. This gives pickup options as well as our highly renowned Economical Express Delivery service.

Our reputation as a leading IT reseller has lead to City Software being able to source great prices for our customers. Each week we have a hand picked "Mega Deal of the Week" which is exclusive to City Software customers as a one week only offer. When combined with our normal hot deals, it's hard to go past City Software for the best products at the best prices.

To celebrate our 16th birthday we invite you to tune into our website on 19th December for special one-day-only offers. Until then, have a read through our latest offerings and have a very Merry Christmas.

Dedicated Account Management

CSW-IT

1300 761 761
www.csw-it.com.au

Serving Australia's Corporate, Government and Education sectors, CSW-IT is one of Australia's most reliable I.T. hardware, software and professional services providers. Customers across Australia value our expert knowledge, quick response times, and true "Vendor Neutral" approach – guaranteeing an efficient, dependable match for your specific business goals. Whether you're a new company in need of a complete end to end I.T solution, or a seasoned organisation searching for a technical "edge", CSW-IT offers you the complete range of I.T. products and professional services to meet your business needs – supplying the industry's most respected brands for hardware, software licensing and consumable products.

3 EASY WAYS TO ORDER

Online - csw.com.au

- Product Information from 18,000+ Products and 200+ leading brands
- 24 Hour Real-Time Stock Availability
- Reserve your order online for a speedy pickup

1300 658 600

Chat with our reliable and knowledgeable staff to truly experience Black tie Service!

Pickup Points

Over 20,000 products available for pickup; preorder online for exceptionally fast pickup!

Mt Waverley (Vic):	Unit 103-105, Axxess Corporate Park, 45 Gilby Road, Tel: 1300 658 600, Fax: 1300 658 010, Email: sales@csw.com.au	
Melbourne (Vic):	Shop 3, 222 Latrobe Street, Tel: 03 9250 6900, Fax: 1300 658 010, Email: melbournecity@csw.com.au	
North Sydney (NSW):	Shop 7-8, 111 Pacific Hwy (Cnr Walker Street), Tel: 02 9455 5900, Fax: 02 9957 1854, Email: northsydney@csw.com.au	
Trading Hours:	Monday - Friday:	North Sydney & Melbourne: 8.30am to 6.00pm AEST.
		Mt Waverley : 8.30am to 5.30pm (Except Wednesday 9.00am to 5.30pm) AEST.
	Saturday	Melbourne: 10.00am to 4.00pm Saturday AEST.

Economical Express Delivery

We work hard to give you the best possible service, at the best possible prices. This goes right down to our freight costs as well. We are renowned as a market leader in shipping affordability by working with our courier partners to get you the best possible deal.

Visit www.csw.com.au/freight for our competitive freight charges or call 1300 658 600 for pricing on Same Day Delivery options.*

Can the deal get better?

The SmartBuy club is the answer! Every time you make a purchase*, in store, online or over the phone, Smart Buy Club members receive a 3% rebate redeemable on their very next order!

Benefits of the SmartBuy Club include:

- Reward certificate valued at 3% of purchase value.
- Special product promotions offered exclusively to members only.
- Updates on the latest news on the latest products!
- Claim your rebates online!

And best of all, it's free to join!

smart BUY club 3% rebate

*To apply online and see full terms and conditions, visit www.csw.com.au/smartbuy or call us on 1300 658 600.

Reap the rewards today!

THE FINE PRINT

Prices are including GST unled otherwise noted. All prices are in AUD $'s. "Save" prices are based on the RRP at time of printing. Only official Australian versions listed. All pictures are for illustration purposes only; actual product may vary from picture. Because of the dynamics of this industry, prices, versions, product details and availability are subject to change without prior notice. Errors & omissions excepted. For out of stock items, delivery dates given are estimates. Rental Finance is available for hardware items over $500. For academic pricing please provide proof of student enrolment, employment from an educational institution or government department as required by the manufacturer for academic, educational or government licensed products. International orders: please call customer service on +61 3 8542 2222. Payment by cheque or direct deposit only. Insurance for delivery of goods is required for all international orders. Warranty & Returns: Goods are not supplied on a trial basis, please check specification & compatibility with the manufacturer prior to purchasing. Our staff can offer advice, but they cannot confirm product compatibility & functionality. All products sold are covered by manufacturers warranties. Please call 1300 658 600 or visit www.csw.com.au for further details and trading terms.*Melbourne only

ABN - 11054615253

Fujitsu LifeBook V1010

- Intel Core Duo T2130 1.86GHz
- 1GB DDR2 SDRAM 667MHz
- Intel Graphics Media Accelerator 950
- 160GB IDE HDD
- DVD Super Multi Drive
- 15.4" TFT WXGA SuperFine Screen
- 56K Modem, 10/100 LAN, Super-G Wifi
- Win Vista Business (Win XP Downgrade included)
- **2yr Pickup and Return Warranty (1yr International)**
- Spill resistant keyboard
- Win XP Downgrade disc included
- **Made in Japan**

***BONUS** Fujitsu Bag and Mouse

$1254 SAVE $45 off RRP
WebCode: FUJ5023

Targus Atmosphere Case & Stereo Travel Speakers

- Quick access top loading case suits up to 15.4" widescreen Notebooks
- High-density padded notebook compartment for maximum protection of your notebook

Stereo Travel Speakers.

- Enhances sound quality of notebook and MP3 players

$45 SAVE $54 off RRP
WebCode: TAR0009

HP 530

- Intel Core Duo T2400 1.83GHz
- 1GB DDR2 SDRAM
- Intel Graphics Media Accelerator 950
- 120GB 5400rpm HDD
- DVD Burner
- 15.4" WXGA 1280 x 800
- 56k Modem, 802.11a/b/g Wifi
- Genuine Windows Vista Home Basic
- 1 Year Warranty

***BONUS**
HP Photosmart C4385 All in One

$1034 SAVE $264 off RRP
WebCode: HCN0315

Acer Extensa 5220

- Intel Celeron M 540 1.86GHz
- 512MB DDR2 SDRAM upgradeable to 4GB
- Intel X3100 Graphics up to 358MB
- 80GB 5400rpm SATA HDD
- DVD Super Multi drive
- 15.4" WXGA CrystalBrite WideScreen
- 56k Modem, 802.11a/b/g Wifi
- Genuine Windows XP Pro
- 1 Year Warranty

You Pay $889
$740
After $149 Cashback

SAVE $159 off RRP
WebCode: ACE0073

WD Passport Portable (Black) 160GB USB 2.0 Hard Drive

High-performance portable storage for your Mac and PC. Light and rugged, it's easy to carry and no external power adapter is needed. Comes with sync & encryption and Google software. Pack up your office files and take them home. Carry thousands of songs or pictures.

120GB USB 2.0
(WDD0078) $145

250GB USB 2.0
(WDD0092) $267

$183 SAVE $17 off RRP
WebCode: WDD0079

NEC Versa E6300 Bundle

Phenomenal capabilities with premium class multi-functionality and top-notch design, the NEC VERSA E6300 is a 14.1" designer series notebook, bringing refreshing Audio, Visual & Touch experience like never before. Embedded with the latest Intel Centrino Duo Processor Technology.

- Intel Core2 Duo 1.5GHz
- 1GB Memory
- 120GB Hard Drive
- Integrated Webcam
- DVD Burner
- 14.1" WXGA Screen
- MS Windows Vista Business
- 1 year Onsite Warranty

***BUNDLED WITH**
- 160GB Maxtor Hard Drive
- Extra 1GB ram (Total 2GB)
- Targus Atmosphere Notebook Case
- CA Internet Security Suite Plus 2008 with $60 Cashback*

*Refer to csw.com.au/promotions

You Pay $1346
$1286
After $60 Cashback

SAVE $721 off RRP
WebCode: NEC0021

Targus Atmosphere Case & Stereo Travel Speakers

- Quick access top loading case suits up to 15.4" widescreen Notebooks
- High-density padded notebook compartment for maximum protection of your notebook

Stereo Travel Speakers.

- Enhances sound quality of notebook and MP3 players

$45 SAVE $54 off RRP
WebCode: TAR0009

HP Compaq 6715B

- AMD Turion 64 X2 Mobile 2.2GHz
- 1GB DDR2 SDRAM
- Ati Radeon X1250 Graphics
- 120GB 5400rpm HDD
- DVD Burner
- 15.4" WXGA 1280 x 800 Screen
- 56k Modem, Gigabit LAN, 802.11a/b/g Wifi
- Genuine Windows Vista Business
- 1 Year Warranty

***BONUS** HP Photosmart C4385 All in One

$1413 SAVE $285 off RRP
WebCode: HCN0298

Amicroe 1GB 667MHz Memory Module

Maximise any of the notebooks on this page by adding some extra memory to allow faster speeds. Use more programs at one time and gain better all round performance all backed by a lifetime warranty.

512MB (AMI0107) $30
2GB (AMI0108) $110

$55 SAVE $35 off RRP
WebCode: AMI0106

NEC Versa E6310

- Intel Core 2 Duo T5250 1.5GHz
- 1GB DDR2 SDRAM
- nVidia GeForce 256MB 8600M Graphics
- 120GB 5400rpm HDD
- DVD Burner
- 14.1" WXGA 1280 x 800 Screen
- 56K Modem, Gigabit LAN, Wifi, BT
- Genuine Windows Vista Business
- 1yr Onsite Warranty

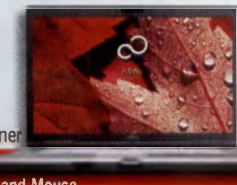
***BONUS** NETGEAR Wireless ADSL2+ Modem/Router (DG834G)

$1437 SAVE $462 off RRP
WebCode: NEC0019

Fujitsu LifeBook E8410C

- Intel Core2 Duo T7300 2.0GHz
- 1GB DDR2 SDRAM 667MHz
- 160GB SATA HDD
- DVD Super Multi Drive
- 15.4" WSXGA 1680 x 1050 Screen
- Web Camera, BT, Gigabit LAN, 802.11b/g/n Wifi
- Win Vista Business (Win XP Downgrade included)
- **2yr Pickup and Return Warranty (1yr International)**
- Spill Resistant Keyboard
- **Made in Japan**
- Serial & Parallel Ports
- Biometric Fingerprint Scanner

NEW



***BONUS** Fujitsu Bag and Mouse

$2045 SAVE $54 off RRP
WebCode: FUJ5025

Logitech Laser Cordless Mouse VX Revolution

The ultimate notebook mouse, VX Revolution turbocharges your digital experience with a nearly frictionless alloy scroll wheel that lets you fly through long documents at hyper-speed.

$69 SAVE $31 off RRP
WebCode: LOG3582

Acer Extensa 5620

- Intel Core 2 Duo 1.80GHz
- 2GB DDR2-SDRAM 667MHz (2x1GB)
- Intel X3100 Graphics up to 384MB
- 160GB SATA HDD
- DVD Super Multi drive
- 15.4" WXGA CrystalBrite WideScreen
- 56k Modem, 802.11a/b/g/n Wifi, Bluetooth, 1394
- Genuine Windows XP Pro
- 1 Year Warranty

***BONUS** $99 Cashback

*Refer to csw.com.au/promotions

You Pay $1422
$1323 After $99 Cashback
SAVE $176 off RRP
WebCode: ACE0074

Fujitsu LifeBook S6410U

- Intel Core2 Duo T7500 2.2GHz
- 2GB DDR2 SDRAM 667MHz
- Intel Graphics Media Accelerator X3100
- 160GB SATA HDD
- 13.3" WXGA SuperFine with LED Backlight screen
- DVD Super Multi Drive
- Intel PRO Wireless b/g/n
- **Embedded 3.5G UMTS/HSDPA up to 3.6Mbps downlink**
- **2yr Pickup and Return Warranty (1yr International)**
- **Made in Japan**
- Spill resistant keyboard
- Win Vista Business (Win XP Downgrade included)
- Biometric Fingerprint Scanner
- Weight 1.6kg

***BONUS**
FUJITSU port replicator, carry bag and USB mouse

*See www.csw.com.au/promotions for terms and conditions. Ends 30/11/2007

$2876 | SAVE $123 off RRP | WebCode: FUJ5024

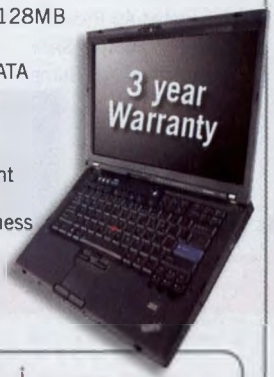
Sarotech 2.5" 80GB USB Hard Drive

- Innovative Slim Size
- Light Weight & Portable
- Powerful Backup Software Included
- Quick Installation
- Plug & Play
- Quality Carry Bag Supplied
- 480Mbps Max Data Transfer Rate

$126 | SAVE $12 off RRP | WebCode: PWR0247

Lenovo T61

- Intel Core 2 Duo 7500 2.2GHz
- 1GB DDR2 667MHz
- Quadro NVS 140M 128MB Dedicated graphics
- 120GB 5400rpm SATA
- DVD Burner Display
- 14.1" WXGA
- NIC, Intel 802.11n, Bluetooth, Fingerprint Reader
- Windows Vista Business



$2482 | SAVE $117 off RRP | WebCode: LEN0034

Apple MacBook Pro

- Intel Core 2 Duo 2.4GHz
- 2GB DDR2 667MHz
- NVIDIA GeForce 8600M GT 256MB Graphics
- 160GB 5400rpm SATA
- SuperDrive 8X
- 15.4" TFT 1440 x 900
- Gigabit LAN, 802.11a/b/g/n Wireless
- Mac OS X Leopard

Authorised Reseller

$3476 | SAVE $123 off RRP | WebCode: APP0303

CA Internet Security Suite Plus 2008

Comprehensive Internet Security and Data Protection

- Key Features
- Anti-Virus
- Anti-Spyware
- Personal Firewall
- Anti-Spam
- Anti-Phishing
- Parental Controls
- Data Backup and Transfer

***BONUS** $60 cash back when purchased with hardware to the value of $100

*See www.csw.com.au/promotions

You Pay $69.95
$9.95
After $60 Cashback

SAVE $60 off RRP | WebCode: CHY2057

HP Compaq 6710B

- Intel Core 2 Duo T7500 2.2GHz
- 1GB DDR2 SDRAM
- Ati Radeon X1250
- 120GB 5400rpm
- LightScribe DVD Burner
- 15.4" WXGA 1680 x 1050
- Gigabit LAN, 802.11 a/b/g Wifi
- Genuine Windows Vista Business
- 1 Year

BONUS
HP Photosmart C4385 All in One

$1717 | SAVE $281 off RRP | WebCode: HCN0300

Acer TravelMate 7720G

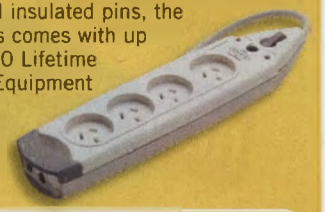
- Intel Core 2 Duo T7500 2.2GHz
- 2 GB DDR2 667MHz
- ATI Radeon HD 2600 XT 512MB Graphics
- 2 x 160GB 5400rpm SATA
- DVD-Super Multi Dual Layer
- 17" WSXGA 1440x900
- 56K Modem, Gigabit LAN, Wireless N, Bluetooth
- Genuine Windows Vista Business

$2236 | SAVE $263 off RRP | WebCode: ACE0066

CITY SOFTWARE®
Black Tie Service, Plain Wrap Prices®

Belkin Home Series 4 Way Surge Protector

The Home Series is perfect for entry-level computers, printers, ADSL modems, audio video, and everyday general household electronics. Offering up to 1034 Joules, AC/phone, fax/modem, cable-broadband protection, cable management, recessed sockets, and insulated pins, the Home Series comes with up to a $75,000 Lifetime Connected Equipment Warranty.

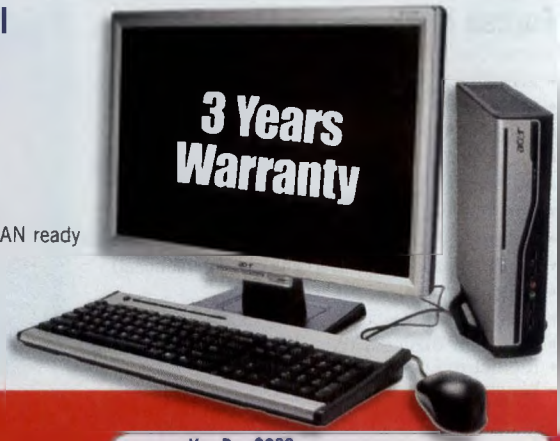


BELKIN

$54 SAVE $25 off RRP
WebCode: BEL0248

Acer Veriton L460 Ultra Small Form Factor

- Intel Pentium Dual Core 1.8GHz Processor
- 1GB DDR SDRAM
- Intel Graphics Media Accelerator 3100
- 160GB 7200rpm SATA
- Slot-load DVD-Super Multi Optical Storage
- Integrated Gigabit Ethernet LAN, Wake-on-LAN ready
- Genuine Windows Vista Home Premium



acer

***BONUS $99**
Cashback until 31st Dec 2007
*See www.csw.com.au/promotions

You Pay $896
$797
After $99 Cashback
SAVE $202 off RRP
WebCode: ACE0075

Logitech Z-4 Speakers

The Z-4 speaker system features a modern audio inspired design with high-gloss and cast metal finish. Award-winning pressure driver subwoofer technology delivers unparalleled distortion-free bass and the sleek satellites feature one active and two pressure drivers.

Logitech

$128 SAVE $41 off RRP
WebCode: LOG3520

HP Compaq DX2300 Desktop

- Intel Core 2 Duo E4300 1.8GHz Processor
- 1GB DDR SDRAM
- Intel Graphics Media Accelerator 3000
- 80GB 7200rpm SATA
- LightScribe DVD Burner
- 10/100 LAN
- Genuine Windows XP Professional
- 1 Year Parts + Labour

+ 17" (HCP6197) $1242
+ 20" Widescreen LCD (HCP6199) $1476
Monitor not included

BONUS
HP Photosmart C4385 All in One

$997 SAVE $241 off RRP
WebCode: HCP5801

HP Compaq DX2250 Desktop

- AMD Athlon 64 X2 4000+ Processor
- 1GB DDR2 SDRAM
- Integrated Ati Radeon X300
- 160GB 7200rpm SATA
- LightScribe DVD Burner
- Windows Vista Business
- 10/100 LAN

+ 17" (HCP6210) $1218
+ 20" Widescreen LCD (HCP6209) $1411

BONUS OFFER

BONUS
HP Photosmart C4385 All in One
Monitor not included
*See www.csw.com.au/promotions

$986 SAVE $282 off RRP
WebCode: HCP5808

Pioneer Blu-ray Writer

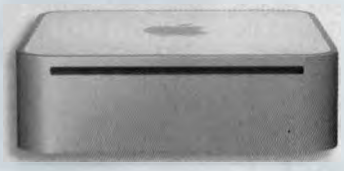
The Pioneer BDR-202 Blu-ray Disc writer is the all in one solution for anyone wanting to create high quality content for Blu-ray Disc, DVD or CD. Offering revolutionary 4x burning speed, the BDR-202 can create a full BD-R 25GB disc in around 25 minutes. The BDR-202 comes bundled with the CyberLink BD Solution software as well as the PlayMovie plugin for Windows Media Centre.

Pioneer

$836 SAVE $63 off RRP
WebCode: PIO0093

Apple Mac Mini Desktop

- Intel Core 2 Duo 2GHz Processor
- 1GB DDR2 667Mhz
- Intel GMA950 Graphics
- 120GB 5400rpm SATA Hard Drive
- Slot-loading SuperDrive
- Mac OS X OS X Leopard
- 1 Year Warranty



Authorised Reseller

$1117 SAVE $31 off RRP
WebCode: APP0312

Lenovo ThinkCentre A61e + 19" Widescreen LCD Bundle

- AMD Athlon X2 BE 2350 Processor
- 1GB DDR2 SDRAM
- ATi Radeon X1250 Graphics
- 160GB 7200rpm SATA HDD
- DVD Burner
- Gigabit Ethernet
- Genuine Windows Vista Business
- 1 Year On-Site, 2nd/3rd Parts and Labour Warranty

22" Widescreen LCD (LDB0054) $1414

lenovo

BONUS OFFER

$1284 SAVE $64 off RRP
WebCode: LDB0053

HP Compaq Small Form Factor DX7400 Desktop

The HP Compaq dx7400 Series Business PC is equipped for flexibility and combines the latest proven technology, options, services and support so you can maximize productivity to help improve your bottom line.

- 1GB DDR2 SDRAM
- Intel Graphics Media Accelerator 3000
- 160GB 7200rpm SATA
- LightScribe DVD Burner
- 10/100/1000 LAN
- Genuine Windows Vista Business
- 1 Year

+ 17" (HCP6240) **$1452**
+ 20" (HCP6242) **$1654**

***BONUS**
HP Photosmart C4385 All in One

$1217 SAVE $382 off RRP
WebCode: HCP6108

Logitech Premium 4-Port USB Hub

The Logitech Premium 4-Port USB Hub for Notebooks provides laptop users with high-speed file transfer (up to 480 Mbps) and port indicator lights.

$30 SAVE $20 off RRP
WebCode: LOG3644

HP Compaq DX2300 Desktop

- Intel Core 2 Duo E4300 1.8GHz Processor
- 1GB DDR SDRAM
- Intel Graphics Media Accelerator 3000
- 80GB 7200rpm SATA
- LightScribe DVD Burner
- 10/100 LAN
- Windows XP Professional
- 1 Year Parts + Labour

17" (HCP6197) **$1242**
20" Widescreen LCD (HCP6199) **$1476**

BONUS Monitor not included
HP Photosmart C4385 All in One
*See www.csw.com.au/promotions

$997 SAVE $241 off RRP
WebCode: HCP5801

Lenovo ThinkCentre M57P + 19" Widescreen LCD Bundle

- Intel Core 2 Duo E6750 (2.66GHz)
- 1GB DDR2 SDRAM
- Onboard Graphics
- 250GB 7200rpm SATA HDD
- DVD Burner
- Gigabit Ethernet
- Genuine Windows Vista Business
- 3 Year Warranty

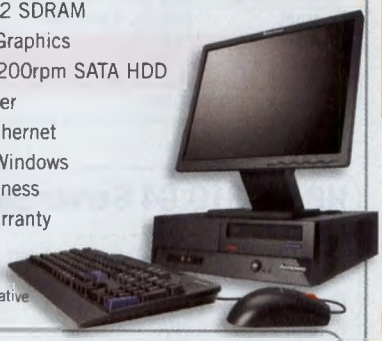


Image for illustrative purposes only

$1921 SAVE $77 off RRP
WebCode: LDB0021

TFT Screen Clean

For use on all coated and non-coated laptop, notebook, TFT, plasma, LCD, PDA, GPS, mobile, basically any screen or monitor. Extensively tested by users and manufacturers, laboratory and industry test have shown that Cleansafe will clean and protect all screen surfaces.

$22 SAVE $4 off RRP
WebCode: CLE0001

Apple iMac 20" Desktop

The all new, all-in-one iMac

Setting new standards for elegance and simplicity, the all-new, all-in-one iMac packs all its components from processor to video camera into an astoundingly thin, anodised aluminium frame.

- 2.0GHz Intel Core 2 Duo processor
- 250GB Serial ATA 7200-rpm hard drive
- Slot-loading 8x SuperDrive (DVD±R DL/DVD±RW/CD-RW)
- 20-inch glossy widescreen TFT (1680 by 1050 pixels)
- Built-in AirPort Extreme wireless networking
- ATI Radeon HD 2400 XT graphics processor with 256MB GDDR3 memory

20" 2.4GHz (APP0318) **$2076**
24" 2.4GHz (APP0319) **$2487**
24" 2.8GHz (APP0310) **$3188**

Authorised Reseller

$1642 SAVE $56 off RRP
WebCode: APP0317

MGE Evolution S 1750VA UPS

High density protection for network devices. Maximum availability and flexibility - Minimum total cost of ownership. With its extremely compact size, the Evolution is the ideal solution for making the best use of the available space. Suitable protection from 1 to 15 servers.

Features:

- Universal Rack & Tower configuration 2U Density
- Allows integration of additional battery packs (Optional)

$1272 SAVE $185 off RRP
WebCode: MGE0080

HP DAT72 USB External Tape Drive

- 36GB/72GB Capacity
- 3 MB/S (Native) 6MB/S (Compressed) Transfer Rate
- Native USB 2.0 Interface
- Dat72, DDS-3, DDS-4 Compatiblity

Bonus DAT 72 Tapes

$927 SAVE $379 off RRP
WebCode: HPH0476

ServerLink Altitude 16 Port KVM

The ServerLink Altitude offers a 19" rackmountable solution with PS/2 & USB support for your server and console. With its independent cascade port, multiple units can be daisy-chained up to 16 levels without losing any ports. Its fully featured, menu - driven OSD offers more intuitive and convenient control.

8 Port (COM9164) **$587**

$876 SAVE $123 off RRP
WebCode: SER0010

HP ML 115 Server Bundle

Part Number	441054-015
Processor	AMD Opteron Processor 1210 1.8GHz
Memory Ram	1GB DDR2 Memory
Hard Drive	2 x 160GB SATA 7200rpm HDD
HDD Controller	4-port SATA with RAID
Optical Storage	48x CD-ROM drive
Ethernet	Embedded NC320i PCI Express Gigabit Svr Adaptor
Slot Totals	2x 32-bit/33MHz PCI, 2x PCI-Express slots
Form Factor	4U Tower
Operating System	Genuine Windows Small Business Server Std 2003
Warranty	1 Year

*BONUS NETGEAR ProSafe Wireless ADSL2 VPN Firewall Router
*see csw.com.au/promotions

$1248 SAVE $201 off RRP
WebCode: HOS0313

HP ML 110 G4 Server Bundle

Part Number	448030-011
Processor	Intel Core Duo 925 3.0GHz
Memory Ram	1GB DDR2
Hard Drive	2 x 160GB 7200rpm SATA HDD
HDD Controller	4-Port SATA Controller
Optical Storage	48x CD-ROM drive
Ethernet	Gigabit Ethernet
Slot Totals	2 x PCI-E Slots, 2 x PCI-X Slots
Form Factor	4U Tower
Operating System	Genuine Windows Small Business Server Std 2003
Warranty	1 Year

*BONUS NETGEAR ProSafe Wireless ADSL2 VPN Firewall Router
*see csw.com.au/promotions

$1305 SAVE $194 off RRP
WebCode: HOS0314

HP ML 310 G4 Server Bundle

Part Number	418041-011
Processor	Intel Dual Core Xeon 3050 2.13GHz
Memory Ram	512MB DDR2
Hard Drive	N/A
HDD Controller	4-Port SATA RAID Controller
Optical Storage	48x CD-ROM
Ethernet	Gigabit Ethernet
Slot Totals	2 x PCI-E Slots, 2 x PCI-X Slots
Form Factor	5U Tower + Redundant Power Supply
Operating System	Not Included
Warranty	1 Year

*BONUS NETGEAR ProSafe Wireless ADSL2 VPN Firewall Router
*see csw.com.au/promotions

$1959 SAVE $336 off RRP
WebCode: HOS0215

HP DL 320 G5 Server Bundle

Part Number	418044-371
Processor	Intel Dual Core Xeon 3050 2.13GHz
Memory Ram	1GB DDR2
Hard Drive	80GB SATA 7200rpm HDD
HDD Controller	Intel Integrated SATA Controller
Optical Storage	N/A
Ethernet	Dual Port Gigabit Server Adapter
Slot Totals	2 x PCI-E Slots
Form Factor	1U Rack
Operating System	Not Included
Warranty	3 Years Parts, 1 Year Onsite + Labour

*BONUS NETGEAR ProSafe Wireless ADSL2 VPN Firewall Router
*see csw.com.au/promotions

$2058 SAVE $37 off RRP
WebCode: HOS0216

Small and Medium Business choose ***City Software*** because **WE UNDERSTAND**

Your Business

SAP Business One and Business Managment Software Solution Experts

Our Business

City Software Business Solutions, part of the City Software Group is a one of Australia's leading providers of SAP Business One and Business Management Solutions. Our primary focus is to provide your business with commercially proven, easy-to-use, reliable and affordable Business Management Systems and Solutions that have been designed with the sole purpose of enhancing your business.

Our solutions are designed to suit a range of Industries:

- Wholesalers
- Distributors
- Importers
- Retailers
- Light Manufacturers
- Construction
- Engineering Services
- Professional Services

What solutions does City Software Business Solutions have to offer?

- Business Process Flow Analysis
- Business Management Software
  - Accounting
  - Sales
  - Purchasing
  - Stock Control
- Workflow Automation
- Business Intelligence (BI)
- Warehouse Management
- Project Management
- Job Costing
- Payroll
- POS Retail Management
- e-Commerce Web Tools
- MS Office Integration
- Flexible Reporting Tools

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us at info@csbs.com.au
or visit our web-site
www.csbs.com.au

SAP has designed SAP Business One, a business management software application, specifically for small and midsize businesses. It's an affordable, easy-to-use way to manage critical business functions across sales, distribution, and financials – all in a single integrated software system. With SAP Business One, you can instantaneously access critical data that provides a complete and up-to-the-minute view of your business – so you can respond to customers faster and grow your business more profitably.

CHANNEL SAP PARTNER

Workbench is a comprehensive Job Costing system combined with a range of "Operational Management" modules, integrated into a number of different financial systems to provide a total business solution for any organisation involved in Jobbing. The software is designed to provide 'operational' staff with an appropriate management solution while continuing to meet the accounting needs of the organisation through the integration with a variety of external financial accounting systems, including SAP Business One.

Workbench
Project Management Software

BI Plus is the breakthrough consolidated BI & Reporting Tool that does it all. BI Plus' philosophy is that dashboards need not be the exclusive domain of executives but are available to anyone with a need for these and importantly they are simple to configure. Corporate Performance Management showing snapshots of strategic operational, financial and corporate data via dashboards made simple. Dashboards in BI Plus are easier to create than with any competing product.

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BUSINESS SOLUTIONS

To arrange an appointment, please call 1300 762 762

Spacedec Acrobat Swing Arm LCD Mount - Desk Kit Combo

- Suits LCD Flat Panel
- Displays from 12" (30cm) to 22" (56cm)
- Suits 75mm x 75mm (3"x 3") and 100mm x 100mm (4"x 4") mounting hole patterns

*Monitor not included.

$212 SAVE $27 off RRP
WebCode: ATD0008

Viewsonic VX2835WM 28" LCD Monitor

Link to endless possibilities of future audio-visual! The ViewSonic VX2835wm 28" multimedia LCD display comes with a golden aspect ratio of 16:10, ultra-fast 3ms video response, and proprietary display technology. It is setting the new standards for digital aesthetics.

Maximum Resolution: 1920 x 900
Response Time: 3ms
Brightness: 500cd/m2
Contrast Ratio: 800:1

ViewSonic

*Bonus Logitech 3M HDMI Cable $79 Value Limited Time

*see csw.com.au/promotions

$1049 SAVE $529 off RRP
WebCode: VIE9006

Spacedec Acrobat Articulated LCD Mount - Desk Kit Combo

- Suits LCD Flat Panel Displays from 12" (30cm) to 22" (56cm)
- Suits 75mm x 75mm (3"x 3") and 100mm x 100mm (4" x 4") mounting hole patterns
- Supports a maximum weight of 9kg (19.8lbs)

*Monitor not included.

$262 SAVE $13 off RRP
WebCode: ATD0005

ASUS VW192TG 19.1" Widescreen LCD Monitor

With the 16:10 golden ratio for widescreens, the VW192T LCD monitors can accommodate multiple Windows on screen to increase productivity.

Maximum Resolution: 1440 x 900
Response Time: 5ms
Brightness: 330cd/m2
Contrast Ratio: 800:1

ASUS

$333 SAVE $16 off RRP
WebCode: ASM0021

LG L1953H-BF 19" LCD Monitor

World first picture enhancing Chip for LCD Monitor Real Colour Management (RMC) express natural colours Adaptive Colour and Contrast Enhancement (ACE) function to enhance brightness and contrast Ideal for mobile imaging in TV, Film (such as movie), Gaming, pictures and animation.

Maximum Resolution: 1280 x 1024
Response Time: 5ms
Brightness: 300cd/m2
Contrast Ratio: 2000:1

LG

$321 SAVE $227 off RRP
WebCode: LGM1013

Spacedec D-Horizontal LCD Monitor Stand

- Suits 2 LCD Flat Panel Displays from 12" (30cm) to 22" (56cm)
- Suits 75mm x 75mm (3"x 3") and 100mm x 100mm (4" x 4") mounting hole patterns
- Supports a maximum weight of 11.5kg (25.3lbs) each

*Monitor not included.

$472 SAVE $27 off RRP
WebCode: ATD0006

Samsung 226BW 22" LCD Monitor

Perfect for the Windows Vista operating system. The latest games and digital video, the 16:10 aspect ratio makes the 226BW a Wide Format Wonder.

Maximum Resolution: 1680 x 1050
Response Time: 2ms
Brightness: 300 cd/m2
Contrast Ratio: 3000:1

SAMSUNG

$526 SAVE $273 off RRP
WebCode: SAM2170

Acer X193WB 19" Widescreen LCD Monitor

Everything is bigger and better on the Acer X193WB. The Panoramic viewable display is ideal for watching DVD movies – transporting you from your home into a small cinema. You will also be able to display 2 full pages of Microsoft Office Applications.

Maximum Resolution: 1440 x 900
Response Time: 5ms
Brightness: 300cd/m2
Contrast Ratio: 2000:1
Silver (ACM0094) $291

acer

$291 SAVE $98 off RRP
WebCode: ACM0095

Displays, LCD TV's & Projectors

Viewsonic LCD TV's

Using ViewSonic's innovative NextVision technology, our LCD TV displays offer the best of both worlds - a fabulous high resolution TV and a ViewSonic LCD with award-winning quality. Ideal for small spaces or anywhere you want HDTV and a flat-panel computer monitor. ViewSonic LCD TVs save space and money, and look great, wherever you choose to show yours off.

ViewSonic	NX2240w	N2640WB	N3240WB	N3740WB
Size	22"	26"	32"	37"
Response Time	5ms	8ms	8ms	8ms
Contrast Ratio	1000:1	800:1	1200:1	1200:1
Brightness	300 nits	500 nits	500 nits	500 nits
Resolution	1680 x 1050	1366 x 768	1366 x 768	1366 x 768
Inputs	HDMI, Component, Composite, S-Video, VGA, TV tuner			
Analogue	Analogue	Analogue	Analogue	
Webcode	**VIE3259**	**VIE3257**	**VIE3256**	**VIE3258**
Price	**$473.00**	**$697.00**	**$897.00**	**$1,182.00**
Save	**$47.00**	**$602.00**	**$502.00**	**$317.00**

2C See IT 84" Projector Screen

The workhorse of the range, the See IT is a reliable, well priced pull down screen that gives you all the flexibility of the Switch IT but at a red hot price. Suitable for use in all sorts of places, and with any sort of output, from the overhead projector to computer games, the See IT will make what your looking at bright, crisp and clear.

100" (TWC0002) **$187**

$157 SAVE $122 off RRP
WebCode: TWC0001

Konnet Fidelity HDMI Cable 1.5M

The Konnet Fidelity HDMI Cable allows direct connection between devices that have HDMI input and output

- High Quality HDMI Cable that offers signal stability and consistency with double ferrite core
- 24K gold plated connectors

*Refer to csw.com.au/promotions

*You Pay $189
$169 After $20 Cashback
SAVE $30 off RRP
WebCode: PWR0248

Home Theatre Projector

Epson EMP-TW700 Home Theatre Projector

Welcome to a world where everything from the latest generation video games right through to breathtaking high definition movies are given true widescreen treatment. Introducing the powerful Epson EMP-TW700 Home Cinema Projector, featuring a massive 10,000:1 contrast ratio and 10-bit colour processing for reproducing 1.07 billion colours!

Replacement Lamp (EMP0702) **$436**

EPSON

$2257 SAVE $742 off RRP
WebCode: EMP0700

Business Projector

BENQ SP830 Digital Projector

Take presentations to a whole new level with the new BenQ SP830 data projector. Made for any auditorium. Colours and details are delivered with crystal-clear smoothness that'll even make video projectors blush. Plus, with its unique technology and brightness to spare at 3,500 stunning ANSI lumens, the WXGA projectors will never leave your audience in the dark.

BenQ

$2762 SAVE $1737 off RRP
WebCode: BEN0830

2C Hang IT Projector Ceiling Mount

The perfect projector mounting solution which makes ceiling installations so easy.
Suitable for any projector that can be inverted and has base mounting holes.

White (TWC0008) **$99**

$99 SAVE $30 off RRP
WebCode: TWC0007

CITY SOFTWARE
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Sandisk Memory Cards

Standard SD

512MB (SIM0387) $13
1GB (SIM0388) $20
2GB (SAN0030) $34

Ultra II SD

1GB (SIM5987) $22
2GB (SIM0457) $40
4GB (SAN0098) $78

Standard Compact Flash (CF)

1GB (SIM0191) $28
2GB (SIM0690) $47
4GB (SAN0036) $79

Ultra II Compact Flash (CF)

1GB (SIM1002) $33
2GB (SIM0691) $50
4GB (SAN0023) $92
8GB (SAN0037) $174

Memory Stick Pro Duo

1GB (SAN0025) $33
2GB (SAN0028) $51
4GB (SAN0053) $89

Ultra II Memory Stick Pro Duo

1GB (SAN0065) $43
2GB (SAN0046) $62
4GB (SAN0066) $99

Epson P-5000 Multimedia Storage Viewer

The Epson P-5000 Multimedia Storage viewer represents an entirely new standard in on-demand digital photograph viewing and control for the professional photographer. Featuring an 80GB hard disk drive and new generation PhotoFine Ultra LCD technology, the P-5000 is a valuable addition to the digital photography workflow.

$938 SAVE $161 off RRP
WebCode: EPL6221

Kodak EasyShare M853 Digital Camera Bundle

Kodak

The M853 is simple to use and packed with the features you need to get great looking pictures. Plus, it's pocket able and available in stylish colours with optional fun accessories—all at a price you can afford.

8.2 Megapixel
3x Optical Zoom
2.5" LCD Screen

BONUS OFFER
BONUS 8" Digital Photo Frame

$397 SAVE $151 off RRP
WebCode: KOD8531

Sony Cybershot DSCW55

SONY

Powerful, colourful and pocket-sized, this ultra-compact camera offers superb 7.2 Megapixel imaging, Carl Zeiss 3x optical zoom lens, high ISO 1000 sensitivity for low-light shooting and Stamina battery power for up to 380 shots. A bright 2.5" LCD screen helps you compose shots, check results and read menus even in bright sunlight.

7.2 Megapixel
3x Optical Zoom
2.5" LCD Screen

BONUS $50 Cashback

You Pay $301
$251 After $50 Cashback
SAVE $78 off RRP
WebCode: SNY1276

Canon Powershot A550

The versatile feature packed camera for budding photographers

Boasting a powerful Canon 4x optical zoom lens and Canon's intuitive DiG!C II processor, the 7.1MP PowerShot A550 delivers simply better pictures.

7.1 Megapixel
4x Optical Zoom
2" LCD Screen
Canon

$187 SAVE $37 off RRP
WebCode: CAN0591

Olympus SP560 Ultra Zoom

With an 18x zoom range that extends from 27mm wide angle to 486mm super telephoto the SP-560UZ covers the widest focal-length range of any compact digital camera in the world today. By combining the power of an 18x optical zoom lens with the digital zoom function, users can enjoy up to 100x zoom (2700mm) which is even powerful enough to capture frame-filling images of the moon.

8 Megapixel
18x Optical Zoom
2.5" LCD Screen
OLYMPUS

$748 SAVE $51 off RRP
WebCode: OLY0139

Canon EOS 400D Twin Lens Kit

Experience exceptional clarity, razor-sharp images and the rich colours that the Canon 10.1 Megapixel CMOS sensor can produce. Combined with the imaging performance and super-fast speed of the DiG!C II image processor, the EOS 400D is the perfect camera for creative photography fun.

10.1 Megapixel
4x Optical Zoom
2" LCD Screen
Canon

NEW TO CITY SOFTWARE

BONUS 2GB CF Card

*Refer to csw.com.au/promotions

$1227 SAVE $122 off RRP
WebCode: CAN0686

Digital Cameras & Smart Phones

Motorola MC35 Smart Phone

Easy to use, easy to carry and built for business

If your job keeps you on the move then look no further than the new Motorola MC35 digital assistant to give you the power to work effectively and efficiently no matter where you are.This single pocketable device puts the combined power of a mobile phone, laptop, GPS, camera and bar code scanner at your fingertips, in a durable device that offers a product life that well exceeds that of the traditional consumer smart phone or PDA. And the convergence of voice and data translates into one device for you to carry and one device to manage.

- Robust design for business use
- Connect to the internet
- Instant messaging and email
- Download and view attachments
- GPS enabled
- Integrated camera/barcode scanner

MOTOROLA

$998 SAVE $32 off RRP
WebCode: MOT0031

Cellnet Pilot-Mini Bluetooth Car Kit

- Fully portable from car to car or office
- Built-in noise cancelling microphone
- Supports voice dialling
- Microphone mute on/off
- Digital Signal Processor (DSP)

cellnet

$52 SAVE $7 off RRP
WebCode: PIL0002

HP iPAQ 112 Classic Handheld

Keep your life productive and organised with the HP iPAQ 112 Classic Handheld. With useful features, including Windows Mobile" 6 with Outlook and Office Mobile, integrated Wi-Fi and Bluetooth 2.0 EDR networking, this HP iPAQ delivers exceptional productivity values packed in its streamline, stylish body. Its large touch screen display also gives you ample room to view all your work and entertainment.

NEW

$382 SAVE $17 off RRP
WebCode: COQ6094

Palm Treo 500V

Get the invite. Check movie times. Get directions. Go. The new Palm Treo 500v smartphone has it all - full-featured phone, messaging, IM, email, and web, plus a full keyboard and a big, bright screen. Planning your night out has never been easier.

NEW

$630 SAVE $119 off RRP
WebCode: USR8100

Verbatim 1GB Micro SD Card

A popular removable storage solution for mobile devices

- Includes adaptor for use in standard SD card slot
- Verbatim Limited Lifetime Warranty

Verbatim 2GB Micro SD Card (VBM6039) $38

Verbatim.

$24 SAVE $5 off RRP
WebCode: VBM6038

HTC Touch Smart Phone

Featuring an easy to use touch screen and user interface, the DOPOD Touch with TouchFLO gives you unprecedented touch panel experience.

- Large 2.8" touch screen display
- Tri-band GSM with GPRS/EDGE
- 2 Megapixel camera
- Internet browsing and Push E-mail
- Multimedia capabilities
- Stereo Bluetooth 2.0 and Wi-Fi

htc

$642 SAVE $57 off RRP
WebCode: HTC0001

ASUS M530w Smart Phone

Receive Instant Messages Anytime, Anyplace

In order to provide business users with the mobility and the versatility of a mobile office, ASUS has designed the new ASUS M530w Smart Phone. Packed with innovative features, the ASUS M530w allows users to send and receive messages instantly anywhere – providing vital information for users to make important and informed business decisions.

HOT

ASUS

$663 SAVE $136 off RRP
WebCode: ASP0023

Belkin TuneCast 3

Now you can play your tunes in your car on any MP3 player, computer, or laptop to listen to your favorite tunes through any FM stereo receiver. The Belkin TuneCast 3 connects portable music players to your car or home stereo quickly and easily over FM radio waves.

BELKIN

$70 SAVE $19 off RRP
WebCode: BEL4922

Apacer Audio Steno AU581 4GB MP3 Player

Catch everyone's attention while wearing hundreds of songs. The audio steno AU581 combines fashion and music into one. The Direct Record button of this MP3 player captures what matters to you with on demand voice recording, and what you like with synchronous FM recording. The high-energy built-in rechargeable Lithium-Polymer battery for hours and hours of listening pleasure, and 12 language support.

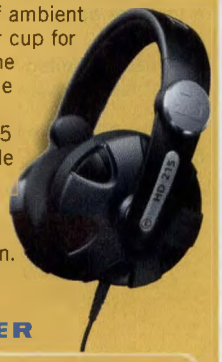
2GB (APA0115) **$84**

Apacer

$118 SAVE $34 off RRP
WebCode: APA0116

Sennheiser HD 215

Enjoy excellent sound: The HD 215 has both outstanding sound characteristics and excellent attenuation of ambient noise. The rotatable ear cup for one-ear listening and the single-sided coiled cable make them ideal for DJ monitoring. The HD 215 comes with a detachable single-sided coiled cable and a convenient protective pouch for storage and transportation.



SENNHEISER

$121 SAVE $38 off RRP
WebCode: SNH0029

Sony 4GB Video MP3 Walkman

A truly exciting release for Sony and you, the S610 Series video MP3 Walkman brings great new features and retains the elements that continue to make Walkman an audio, video and image player of true substance and absolute quality. Also available in Pink, Black, White & Red.

SONY

$191 SAVE $8 off RRP
WebCode: SNY5604

Apple iPod Classic 80GB Silver

With 80GB or 160GB of storage and up to 40 hours of battery life, the new iPod classic lets you enjoy up to 40,000 songs or up to 200 hours of video or any combination wherever you go.

80GB Black (APP0330) **$339**

Authorised Reseller

$339 SAVE $10 off RRP
WebCode: APP0329

Sansa Express MP3 Player 2GB

The Sansa Express MP3 player is an affordable, cable-free, 1GB flash-based MP3 player with superior features not typically offered on a smaller capacity player.

Created by the leader in flash memory, the Sansa Express MP3 player has many features of a high-end player, including a microSD expansion slot, FM tuner, recording capabilities, plus a direct connection to a consumer's computer – with no USB cable required. The Sansa Express is the latest evolution of SanDisk's Sansa MP3 player series.

1GB (SAN0113) **$63**

Capacity playback matrix

		1GB
MP3	Hours of Music Playback	16
	Number of Songs	250
WMA	Hours of Music Playback	32
	Number of Songs	500

SanDisk

$72 SAVE $7 off RRP
WebCode: SAN0114

Logitech AudioStation

The single sound system for any room.

Just add your iPod to create a full-function stereo that fills any room in your home with high-performance sound. Enjoy audiophile acoustics from two-way speakers, featuring 5 mm soft-dome tweeters and 10 cm long-throw woofers.

PC USER BEST BUY

Audio Quality

Immerse yourself in audiophile acoustics.

- ***1" High-Definition Soft-Dome Tweeters:*** Get precision and clarity on the highest notes.
- ***4" High-Power Long-Throw Woofers:*** Fill the room with deep, powerful bass.
- ***DSP-Controlled Dynamic Digital EQ:*** Minimize distortion and enjoy true-to-life sound.
- ***Bi-amplified Transducer with Digital Crossover:*** Get studio quality audio that plays louder and sounds better.

iPod not included.

Logitech

$342 | SAVE $158 off RRP | WebCode: LOG3590

JBL Reference 220 Headphones – Black

- Amazingly comfortable in-ear design
- High-quality miniature transducers outperform other earphone systems
- Wear them your way: foam ear pads, silicone in-ear inserts, detachable ear cuffs or a foldable under-chin strap
- Three ear-piece sizes included, for a personal fit

JBL Reference 220 White
(JBL0045) $114

JBL

$114 | SAVE $25 off RRP | WebCode: JBL0044

DLO HomeDock Music Remote

The HomeDock Music Remote lets you dock your iPod by your stereo, then view and control all your music from the palm of your hand. The HomeDock Music Remote not only lets you control iPod playback, but also lets you see what's playing on the bright and easy-to-read remote display. Up to 45m range.

Compatible with new range of iPods

iPod not included.

DLO

$198 | SAVE $31 off RRP | WebCode: PWR0197

JBL On Tour - White

The JBL On Tour is a compact, lightweight, high performance portable sound system. Connected to your iPod, MP3 player, laptop or other music source, the JBL On Tour will provide hours of clean, powerful sound. JBL On Tour runs on 4 AAA batteries or with an AC adapter.

Black
(JBL0019) $182

JBL

$182 | SAVE $12 off RRP | WebCode: JBL0020

Logitech Pure-Fi Anywhere Compact Speakers for iPod

The Pure-Fi Anywhere speaker system uses a unique combination of speaker drivers to deliver clear sound with maximum bass and minimal distortion. Its compact size and long battery life make it the ideal companion to your iPod.

Logitech iPod not included.

$165 | SAVE $64 off RRP | WebCode: LOG3668

DLO TuneStik II

Wireless FM Transmitter & RF Remote with LCD screen for iPod. An integrated pass-through dock connector, which gives you the freedom to combine TuneStik II with virtually any iPod accessory adding an RF remote (with built in LCD Screen) and an FM transmitter to nearly all your iPod gear.

Compatible with new range of iPods

iPod not included.

DLO

$92 | SAVE $7 off RRP | WebCode: PWR0246

Harmon Kardon Go + Play

Harman Kardon Go + Play delivers tight, thunderous bass from high-excursion low-frequency drivers. Just as important, the highs are distinct and crystal clear. Go + Play is AC- or battery-operated, so it will go anywhere your iPod or other music player goes – and make your favourite music sound better when it arrives.

iPod not included.

harman kardon

$547 | SAVE $43 off RRP | WebCode: JBL0002

iHome iH8 White iPod AM/FM Clock Radio

iHome8 Dual Alarm Clock Radio for your iPod or MP3 player with Remote Control and 12 AM/FM Presets and Equaliser. What better way to Rise and Shine to your favourite tunes?

iPod not included

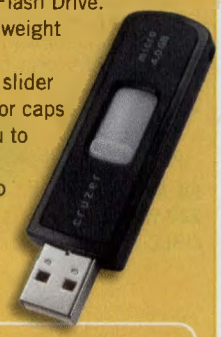
iHome

$176 | SAVE $23 off RRP | WebCode: IHO0001

SanDisk Cruzer Micro U3 4GB

SanDisk Cruzer Micro design is a small, smart and secure USB Flash Drive.

- Small, compact light weight design
- New retractable USB slider eliminates the need for caps
- U3 smart enables you to take your portable applications on the go



1GB (SAN0060) $22
2GB (SAN0061) $33

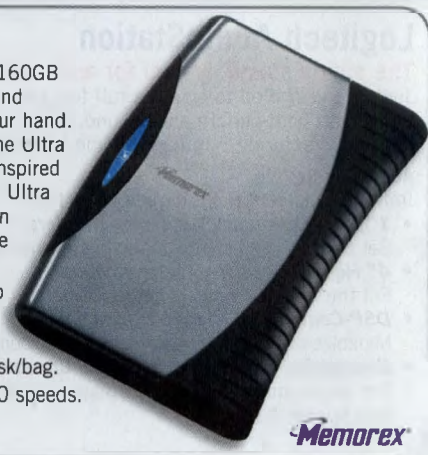
SanDisk

$58 SAVE $12 off RRP
WebCode: SAN0062

Memorex 120GB Portable Hard Drive

The Ultra TravelDrive 2.5" hard drive offers 80GB, 120GB or 160GB of storage and back-up capacity for your data, photos, music and video, all in a stylish device that fits easily into the palm of your hand. Featuring an ergonomic shape and rubberized gripping area, the Ultra TravelDrive can be personalized with interchangeable, nature-inspired colour faceplates - a unique twist for portable hard drives. The Ultra TravelDrive comes complete with an easy-to-use back-up button feature that launches the back-up and synchronization software for PC and Mac.

- Includes two additional, interchangeable colour faceplates to customize your drive for style, or colour-code multiple back-up devices.
- Double-injected, rubberised design remains stationary on desk/bag.
- Speed indicator light indicates usage of USB 1.1 or USB 2.0 speeds.
- Includes back-up and synchronization software, and a USB cable.



80GB (MEM0022) $104
160GB (MEM0020) $178

Memorex

$145 SAVE $104 off RRP
WebCode: MEM0021

SanDisk Extreme Ducati USB 4GB

Passion for Performance

SanDisk has teamed with Ducati Corse MotoGP to launch the most unique USB Flash Drive to date.

- Distinctive design inspired by Ducati motorcycles.
- Fast 20MB/sec sequential read/write speed.
- The fastest consumer USB Flash Drive SanDisk offers.
- Massive 4GB capacity

$139 SAVE $10 off RRP
WebCode: SAN0104

LaCie 160GB Mobile Disk

USB bus-powered for portable storage Increase your computer's capacity instantly Transfer, exchange and synchronize office data Back up and restore all of your personal files in one click

250GB (LAC0793) $282

LACIE

$152 SAVE $47 off RRP
WebCode: LAC0790

Seagate 80GB Freeagent Go

Whether using a computer at work, school, a business center, an Internet cafe or library, have your desktop environment and latest files with you. Along with up to 160 glorious gigabytes, FreeAgent Go software lets you carry lots of great programs and all your browser favorites and passwords without having to haul around your computer. Now any PC can temporarily become your PC.

160GB (CCG6011) $184

Seagate

*FREE 4 Port USB 2.0 Hub

*Refer to csw.com.au/promotions

$131 SAVE $14 off RRP
WebCode: CCG6009

BullGuard Backup (OEM)

BullGuard Backup allows users to schedule automatic online and/or local backups of key documents such as email files, photos and music. Online backups provide the ultimate form of data security as files are stored outside your laptop or PC.

- Supports both online and local backup
- Encrypted data transfer
- The online backup drive can be accessed from anywhere in the world

#When purchased with any hard drive on this page

$33# SAVE $32 off RRP
WebCode: BUL0004

WD Passport Portable 2.5" 250GB

Easy - Installation is a snap because you don't really "install" this drive; you just plug it in and it's ready to use. There is no CD to install; the included software loads from the drive the first time you plug it in.

Smart - Powered by the USB bus. No separate power supply is needed.

More Space - Capacities up to 250 GB means you can take even more of your photos, videos, files and music with you wherever you go.

Ultra-portable - This compact drive fits easily in your pocket or purse, weighs only a few ounces and holds tons of valuable data.

Includes Google software - Search your drive, manage your photos, and simplify Web searches with included Google software. (Windows only).

120GB (WDD0078) $145
160GB (WDD0079) $183

WD Western Digital

$267 SAVE $62 off RRP
WebCode: WDD0092

LaCie Desktop Hard Disk Hi-Speed USB 2.0 500GB

Compact & Easy To Use

This efficient and simple USB desktop hard drive is compact and easy for anyone to use. One of the smallest desktop hard drives on the market, it offers a minimal footprint and light weight. Setup is nearly effortless; it's plug & play and ready to use just seconds after removing it from the box. LaCie '1-Click' Backup Software for PC and Mac is included for quickly saving files in one click.

Hi-Speed USB 2.0 Universality

With Hi-Speed USB 2.0 interface, this universal hard drive makes a great companion to your PC or Mac. Even use it as a reliable data shuttle between USB-equipped desktop and laptop computers. Advantages of Hi-Speed USB 2.0 include: universal compatibility, cross-platform convenience, hot-pluggable connections, and high speed transfer rates. This drive comes pre-formatted for use across Windows & Mac OS platforms.

LACIE

$194 SAVE $35 off RRP
WebCode: LAC1110

WD My Book Premium Dual Interface 320GB

They're your photos, your music, your videos, your important files. Make extra room for them, back them up, and keep them safe on WD's My Book Premium. This reliable, easy-to-use external hard drive is the perfect storage solution for all your precious digital assets.

500GB (WDD0085) **$276**
750GB (WDD0096) **$448**

Western Digital

$232 SAVE $18 off RRP
WebCode: WDD0080

Seagate 750GB Freeagent Pro

The FreeAgent Pro data mover provides anyone who's serious about their digital content with the freedom to stay connected to it. The FreeAgent Pro data mover automatically duplicates and moves content you select to multiple locations like email and contacts to your IPod, your entire "My Documents" folder to FreeAgent, or move it to your own online space where you can access it from any browser 24/7 or share it with anyone you choose.

320GB (SGA0407) **$210**
500GB (SGA0409) **$257**

Seagate

$372 SAVE $27 off RRP
WebCode: SGA0411

Maxtor OneTouch Dual Interface (250GB)

Provide a safe haven for your entire working environment with a Maxtor OneTouch 4 Plus personal storage solution. Not only does the OneTouch 4 Plus provide backups, data storage, and protection for your files, it also protects your entire computer system in case of disaster. Firewire 400 and USB 2.0 interfaces compatible.

500GB (MXT4008) **$259**
750GB (MXT4009) **$433**

Maxtor

$177 SAVE $12 off RRP
WebCode: MXT4007

Verbatim Store 'n' Go 8GB USB Drive

Store 'n' Go USB drives make transporting and sharing files simple and convenient

- 1GB - 8GB Capacity
- Ultra Slim Product Design for stacked USB ports
- Security feature to protect sensitive data
- Vista ReadyBoost compatible

1GB (VBM5138) **$24**
2GB (VBM0161) **$39**
4GB (VBM9523) **$62**

Verbatim

$108 SAVE $51 off RRP
WebCode: VBM6030

WD My Book Essentials 1 Terabyte (1TB)

They're your photos, your music, your videos, your important files. Make extra room for them and keep them safe on My Book Essential Edition USB 2.0 external hard drive from WD. Easy to set up,easy to use - this drive is all about simplicity.

- Easy to set up, easy to use - This drive is all about simplicity. Plug it into your computer's USB 2.0 port and start saving.
- Intelligent drive management features The My Book drive turns itself on and off with your computer.

320GB (WDD0084) **$188**
500GB (WDD0085) **$232**
750GB (WDD0095) **$384**

Western Digital

$528 SAVE $71 off RRP
WebCode: WDD0103

Verbatim 2GB Store 'n' Go Mini with Swivel Cap

The Store 'n' Go Mini is Verbatim's first cap less USB drive. It features a swivel designed cap which is attached to the drive, so the days of lost caps are gone! Versatile, yet easy to use, simply plug the Mini Store 'n' Go into any USB port, then drag and drop your folders and files.

1GB (VBM6052) **$21**

Verbatim

$33 SAVE $7 off RRP
WebCode: VBM6051

Linksys NAS200 - Network Storage System with 2 Bays

Now you can quickly and easily add storage space onto your network with the Linksys Network Storage System. This stand-alone network appliance features two available SATA hard drive bays so you can attach as much storage as you need now, and add more later as your storage needs grow.

LINKSYS

$203 SAVE $46 off RRP
WebCode: LNK6256

Seagate Desktop Hard Drives

Description	WebCode	Price
80GB PATA	(SGA0344)	$74
80GB SATA II	(SGA0347)	$76
160GB PATA	(SGA0209)	$89
160GB SATA II	(SGA0210)	$95
320GB PATA	(SGA0916)	$138
500GB PATA	(SGA0173)	$249
750GB PATA	(SGA0166)	$396
1TB SATA II	(SGA0178)	$602

Seagate Cuda 7200.10 320GB SATA II 16MB

$144
WebCode: SGA0917

Seagate Cuda 7200.10 750GB SATA II 7200 16MB

$380
WebCode: SGA0165

Stardom 1TB SATA RAID Subsystem

The Stardom RAID system has a neat design and equipped with RAID 0, 1 data backup along with LCD display function. It supports 3.5" SATA hard drive and universal USB 2.0 transfer interface which enables you to backup the critical data in real time. There is no need to purchase additional converter cards to match the existing transfer interface.

500GB
(PWR0249) $507

STARDOM

$653 SAVE $76 off RRP
WebCode: PWR0250

Imation Odyssey Dock with 80GB Cartridge

The Odyssey Removable Hard Disk Storage System is designed to help small offices and home offices meet the escalating challenges of data protection by providing fast backup, accurate restores and full disaster recovery with minimal effort. The Imation Odyssey removable hard disk cartridge capacities range from 80GB to 160GB. The docking station accommodates all disk capacities and is scalable to future capacities, making the Imation Odyssey Removable Hard Disk Storage System a sound investment for years to come.

80GB Cartridge (MMM0420) $136
120GB Cartridge (MMM0421) $164
160GB Cartridge (MMM0422) $216
Dock with 120GB Cartridge (MMM0419) $397

imation

$307 SAVE $88 off RRP
WebCode: MMM0418

D-Link DNS-323 - 2 Bay Network Storage Enclosure

- Secure and share your digital files
- Insert either one or two Sata hard drives without using any tools or attaching any cables
- Protect your important files by making regular backups to mirrored hard drives

D-Link

$327 SAVE $73 off RRP
WebCode: DLK0066

WD My Book World Edition 1TB Ethernet HDD

Add this unique remote-access storage system to your wired or wireless network and you'll have a surprisingly simple and secure way to access and share data.

1.5 Terabyte
(WDD0091) $913
2 Terabyte
(WDD0107) $1254

Western Digital

$623 SAVE $76 off RRP
WebCode: WDD0088

Maxtor Shared Storage II 1TB

- Store and automatically backup the data on networked computers to one location for MAC and PC
- Up to 1.5TB capacity with simple user Interface RAID 1 and 0
- 1 USB port for connecting and sharing printers and additional hard drives
- Gigabit Ethernet
- Media server plays back digital photos, music and video to networked media/ entertainment systems without a computer on

Maxtor

$626 SAVE $23 off RRP
WebCode: MXT0350

LaCie 1TB Ethernet Big Disk

The LaCie Ethernet Big Disk is the essential storage solution for home and small business networking.

- Share files over Gigabit Ethernet
- Full support for Windows, Mac & Linux
- Stream your photos, music and videos
- Simple set-up with a quick Wizard Install

2 TB
(LAC2001) $1287

LACIE

$537 SAVE $262 off RRP
WebCode: LAC9869

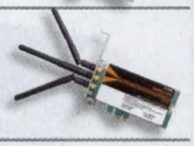
D-Link DWA-140 RangeBooster N USB Adapter

$111 | SAVE $29 off RRP | WebCode: DLK0090

D-Link DWA-547 RangeBooster N 650 Desktop Adapter

$103 | SAVE $33 off RRP | WebCode: DLK9205

D-Link DWA-556 Xtreme N PCI Express Desktop Adapter



$134 | SAVE $26 off RRP | WebCode: DLK0091

D-Link DWA-643 Xtreme N Notebook ExpressCard

$134 | SAVE $26 off RRP | WebCode: DLK0092

D-Link

D–Link Xtreme N Gigabit Router (DIR–655)

The D-Link Xtreme N Gigabit Router is a draft 802.11n compliant device that delivers up to 300Mbps and superior wireless coverage for larger environments & bandwidth-intensive applications. Backwards compatible with 802.11b/g, connected to a Cable/DSL modem provides high-speed internet access to PC's, gaming consoles and media players. Inc.

$247 | SAVE $53 off RRP | WebCode: DLK0064

TRENDNET Internet Camera with Audio

TV-IP201 Internet audio Camera Server is the perfect device for remote monitoring and transmitting real-time events over the Internet. The TV-IP201 functions as a video/audio/ surveillance camera allowing you to view live events with your web browser via Internet or Intranet. Up to 16 cameras can be remotely managed with the bundled IP View software.

TRENDNET

$287 | SAVE $53 off RRP | WebCode: TDN0177

Billion BiPAC 7404VGPM VOIP Router

ADSL2+ 4 Port Modem router with Annex M, Firewall, QOS, Wireless and VOIP. 2 VOIP Ports with PSTN fail over and the Least Cost Routing gateway, allowing up to 8 different VOIP service plans with the cheapest calls.The perfect solution for the small business looking to upgrade to VOIP and save serious money with phone bills.

BILLION

$274 | SAVE $25 off RRP | WebCode: BIL0027

Billion BiPAC 7300G Router

ADSL2+ 4 Port Modem Router with Annex M, Firewall, Q&S and Wireless. The ideal internet connectivity solution for the residential and SOHO market.

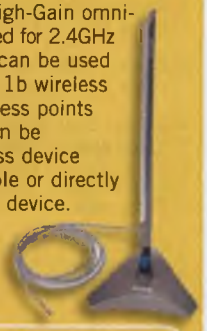
BILLION

$132 | SAVE $37 off RRP | WebCode: BIL0026

D-Link Omni Directional Indoor Antenna 7dBi (ANT24-0700)

The ANT24-0700 is a High-Gain omni-directional antenna designed for 2.4GHz ISM band indoor use. It can be used with 802.11g and 802.11b wireless LAN devices such as access points and remote routers. It can be connected to your wireless device through an extension cable or directly attached to your wireless device.

5dBi Antenna
(DLK0141) $65



D-Link

$79 | SAVE $21 off RRP | WebCode: DLK9245

Telstra approved ADSL splitter/filter
- Recommended for ADSL2+

$18 | SAVE $7 off RRP | WebCode: NET9481

Netcomm NP545 54Mbps Wireless USB Adapter
- 54G Wireless USB Adapter

$45 | SAVE $5 off RRP | WebCode: NET9530

Netcomm NP285 Turbo HomePlug Twin Pack
- 85Mbps Ethernet over Power adapters

$178 | SAVE $21 off RRP | WebCode: NET9450

Netcomm NB6W ADSL2+ Wireless Modem Router

The Netcomm NB6W is a single port ADSL2/2+ compatible router/modem with a built in wireless access point, providing wireless internet and file sharing between multiple computers. Watching movies, downloading music and online gaming becomes second nature with the NB6W. Capable of delivering high-speed internet access of up to 24Mps makes this modem perfect for bandwidth intensive activities.

BONUS USB Adapter
$49 Value Via Redemption
*Refer to csw.com.au/promotions

$108 | SAVE $69 off RRP | WebCode: NET9511

FAST Same Day Despatch# **ECONOMICAL** Express Delivery **RELIABLE** Knowledgeable staff

Belkin N1 Wireless Router

Providing greater range and faster speeds, N1 Wireless offers a quick and efficient way for people to distribute video, music, photos, and files among the networked computers in their home. The built-in Network Status Display shows the status of your network. The icons represent each component of your network and show you whether or not each device is working properly.

BELKIN

$237 SAVE $43 off RRP
WebCode: BEL7000

D-Link DGS-3100-24P 24 Ports Managed L2 Gigabit Stackable Switch With POE

The DGS-3100-24 switch is a managed Layer 2 Gigabit stackable switch designed as feature-rich, low-cost devices in the entry-level network management category. It consists of 24 Ports 10/100/1000Mbps with up to 20Gbps physical stacking ability.

D-Link

$1586 SAVE $313 off RRP
WebCode: DLK0086

D-Link DFL-800 Firewall

The NetDefend family of Firewall/VPN Security Appliances is D-Link answer for hardware-based network security. The new D-Link DFL-800 Network Security Desktop VPN Firewall network security appliance is an easy-to-deploy VPN and firewall solution designed for small-to-medium sized businesses that demand superior performance and security.

D-Link

$1004 SAVE $195 off RRP
WebCode: DLK6059

Comsol Ethernet Patch Cables

- **Comsol 0.5m RJ45 Cat 6 Patch Cable Blue** (COM9030) **$7**
- **Comsol 1 mtr RJ45 Cat 6 Enhanced Patch Cable Blue** (COM9045) **$10**
- **Comsol 3mtr RJ45 Cat 6 Enhanced Patch Cable Blue** (COM0112) **$11**
- **Comsol 5mtr RJ45 Cat 6 Enhanced Patch Cable Blue** (COM9090) **$22**
- **Comsol 10mtr RJ45 Cat 6 Enhanced Patch Cable Blue** (COM9105) **$27**
- **Comsol 25m RJ45 Cat 6 Patch Cable Blue** (COM0118) **$35**

COMSOL

Linksys Wireless-N PCI Adapter (WMP300N)

$130 SAVE $30 off RRP
WebCode: LNK5545

Linksys Wireless-N Notebook Adapter (WPC300N)

$130 SAVE $30 off RRP
WebCode: LNK5546

Linksys Wireless-N USB Adapter (WUSB300N)

$130 SAVE $30 off RRP
WebCode: LNK1235

Linksys Wireless-N Gigabit Router With Storage Link

Internet-sharing Router and 4-port Gigabit Switch, with a built in speed and range enhanced Wireless Access Point. Also connects hard drive or flash-based USB storage devices directly to your network to share music, video, or data files MIMO technology uses multiple radios to create a robust signal that travels up to 4 times farther.

LINKSYS

$296 SAVE $54 off RRP
WebCode: LNK6234

D-Link DWL-3200AP Managed Access Point

D-Link unveils its new AirPremier DWL-3200AP 802.11g 108Mbps Managed Access Point, designed specifically for business-class environments such as large or enterprise corporations. Operable as either an AP or Wireless Bridge, and coupled with safety approved metal chassis and advanced security.

D-Link

$347 SAVE $83 off RRP
WebCode: DLK6041

Linksys WRT150N Wireless N Router

- Internet-sharing Router and 4-port Switch, with a built in speed and range enhanced Wireless Access Point
- MIMO technology uses multiple radios to create a robust signal that travels up to 3 times farther and reduces dead spots
- Up to 9 times faster than Wireless-G, but also works great with Wireless-G and -B devices

LINKSYS

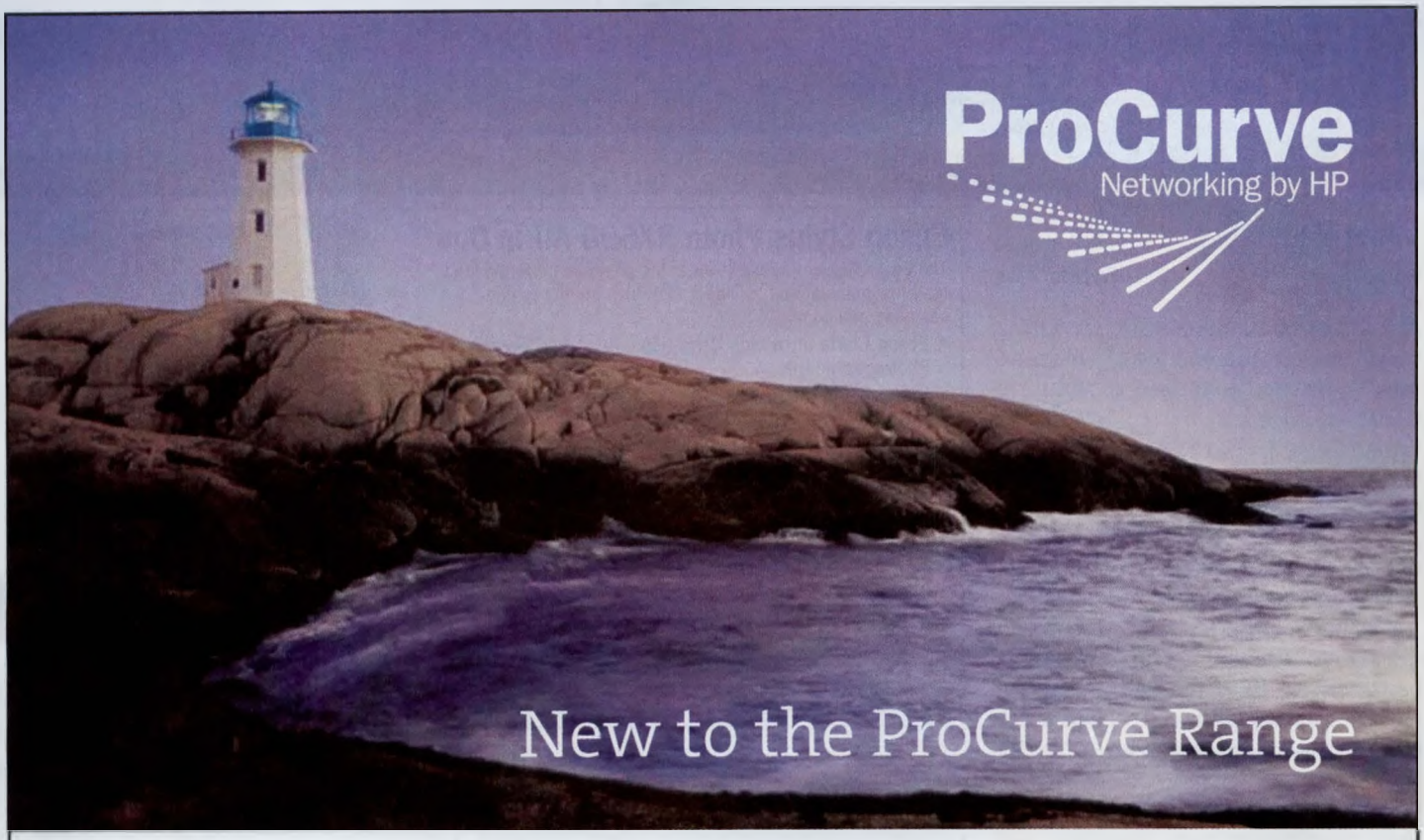
$138 SAVE $31 off RRP
WebCode: LNK2141

Linksys WAG325N Wireless N ASDL 2+ Gateway

- High-speed ADSL2+ Modem gives you a fast, "Always On" connection to the Internet
- Connect your PCs via the built-in Router and 4-port Switch to jump start your Ethernet network and share the Internet throughout the building
- Built-in Wireless-N (draft 802.11n) Access Point also lets you connect without running wires -- up to 12 times as fast as Wireless-G

LINKSYS

$207 SAVE $52 off RRP
WebCode: LNK6212



The ProCurve Wireless Access Point 10ag

The ProCurve Wireless Access Point 10ag is ideal for small enterprise networks that need quick deployment with minimal investment. Covered by the leading ProCurve Lifetime Warranty*, the Wireless Access Point can be configured in minutes using intuitive Web Managed interface. Flexible and interoperable, it uses Power over Ethernet (PoE), allowing for maximum flexibility.

- Supports Wi-FI Protected Access (WPA) or WPA2
- Supports 802.11a and 802.11b/g Wireless standards
- Supports up to 8 SSIDs
- Multi-vendor interoperability
- Simultaneous dual radio operation
- Intuitive Web interface
- Power over Ethernet (PoE) capable
- ProCurve Lifetime Warranty* protection

ProCurve Wireless Access Point 10ag... Part No. J9141A

Our Price **$282.00** | **Save $22.00**

WebCode.....HPE9141

Business Partner

*For as long as you own the product, with next-business-day advance replacement (available in most countries). For details, refer to the ProCurve Software License, Warranty, and Support booklet at http://www.hp.com/rnd/support/warranty/index.htm

1300 761 761

http://www.csw.com.au/business

CSW-IT

Inkjet Paper

Description	WebCode	Price
Canon Papers		
Canon 4x6 Glossy Photo Plus Cards (20 Sheets)	CAN0103	$10
Canon 5x7 Glossy Photo Plus Cards (20 Sheets)	CAN0162	$16
Canon A3 High Resolution Paper (20 Sheets)	CAN0111	$10
Canon A3 Glossy Photo Paper	CAN0194	$26
Canon A3 Pro-Quality Photo Paper (10 Sheets)	CAN0113	$39
Canon A4 Glossy Photo Paper	CAN0173	$14
Canon A4 High Resolution Paper (200 Sheets)	CAN0080	$35
Epson Papers		
Epson 4x6 Premium Glossy Photo Paper	EPA1729	$16
Epson A3 Premium Semigloss Photo Paper	EPA2007	$94
Epson A3+ Premium Semigloss Photo Paper	EPA2006	$119
Epson Double-Sided Matte Paper	APA5063	$34
Epson 4x6 Ultra Glossy Photo Paper (50 Sheets)	EPA1943	$20
Epson 5x7 Premium Glossy Photo Paper	EPA5070	$12
Epson A4 Bright White Ink Jet Paper (500 Sheets)	EPA5030	$19
Kodak Papers		
Kodak A4 Premium Photo Paper Glossy (20 Sheets)	KOD7729	$14
Kodak A4 Premium Photo Paper Glossy (50 Sheets)	KOD7737	$26
Kodak A4 Photo Paper Glossy (100 Sheets)	KOD7208	$28
Kodak 4x6 Photo Paper Glossy (20 Sheets)	KOD7175	$7
Kodak 4x6 Photo Paper Glossy (60 Sheets)	KOD6571	$20

Epson Stylus Photo RX690 All in One

The Epson Stylus Photo RX690 is the premium performance multifunction solution for super fast, high quality printing, scanning and copying.

- Epson Claria ultra high definition Photographic ink
- Super fast print speeds of up to 40ppm
- Dual paper trays
- Economical Intellidge individual 6 colour cartridge system
- Optional Auto Duplexer unit
- 4 x 6 photo prints from 12 secs

***$50 Cashback**
Additional $20 Cashback for buying a set of inks

*Cashback via redemption see www.csw.com.au/promotions

EPSON

You Pay $322
$272
After $50 Cashback

SAVE $126 off RRP
WebCode: EPI0690

Epson Stylus CX8300 All in One

The Epson Stylus CX8300 is the multifunction printer offering versatile functionality and ease of use for home or small office users.
DURABrite Ultra resin coated pigment ink

- Economical Intellidge 4 individual ink cartridges
- Enhanced productivity with LCD viewer & card slots
- Up to 32ppm printing speed Integrated 1200 dpi scanner PictBridge

***$50 Cashback**
*see www.csw.com.au/promotions

EPSON

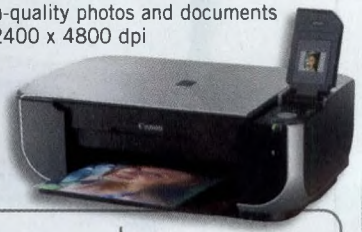
You Pay $179
$129
After $50 Cashback

SAVE $119 off RRP
WebCode: EPI8303

Canon MP470 All in One

Convenient All-in-One direct photo printer with 1.8" LCD screen. Quality prints, copies and scans.

- 4800 x 1200 dpi resolution
- 2 picolitre FINE print-head technology for high quality photos and documents
- 1.8" colour LCD screen allowing preview and image correction before printing
- Scan high-quality photos and documents at up to 2400 x 4800 dpi



Canon

$132

SAVE $17 off RRP
WebCode: CAN0666

Brother MFC-465CN Colour Inkjet Multifunction Centre

Colour Inkjet Printer, Colour Fax, Flatbed Digital Copier, Flatbed Colour Scanner, PhotoCapture Centre, PC-Fax

- Up to 10 sheets ADF
- 14,400bps (Fax) Fax Modem
- Up to 30 ppm Mono, Up to 25 ppm Colour at 600x150dpi Print Speed
- 32MB (RAM) Standard Memory
- Up to 100 sheets Paper Capacity
- Direct printing from Compact Flash, Memory Stick, Memory Stick Pro, Secure Digital(SD/MMC), xD Picture Card (TypeM/TypeH)
- USB 2.0 @ Full-Speed, 10/100BASE-TX Ethernet Interface
- Pictbridge

FREE 3 colour cartridge pack

brother

$242

SAVE $37 off RRP
WebCode: BRT0159

HP P1505 A4 Mono Laser Printer

A versatile and value-packed desktop printer designed to deliver professional results

- Up to 23ppm print speed
- First page out in < 6.5 Sec
- 600 x 600 dpi print quality
- Duty cycle monthly up to 8000
- Power-pack desktop performance with exceptional results
- Compact design, smart solutions
- High-end LaserJet printing experience on your desktop
- Personal users and small workteams who desire professional documents and superior desktop performance

P1505N (HPL1413) **$467**

$291 | SAVE $38 off RRP | WebCode: HPL0412

Canon LiDE 25 Scanner

Affordable, quality scanning made easy

- 1200 x 2400 dpi optical resolution with 48-bit colour depth for sharp, accurate scans.
- Three one-touch buttons Scan/Copy/E-mail for easy operation.
- Compact and stylish design.
- USB powered.
- Advanced Z-Lid accommodates scanning of bulky items such as books with ease.

$108 | SAVE $11 off RRP | WebCode: CAN0403

Brother HL-2040

A quality entry-level 20ppm mono laser printer for the Windows or MAC user which offers a 600 x 2400 dpi print resolution and optional network capability.

- Up to 1200 dpi class resolution
- 8MB memory
- Parallel & Full Speed USB 2.0
- Up to 250 sheet paper capacity

$143 | SAVE $56 off RRP | WebCode: BRT0039

Fuji Xerox DocuPrint 204 Mono A4 Laser Printer

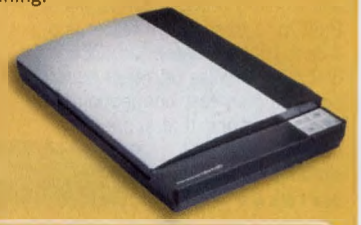
If you want low-cost, quality printing with networking capabilities, the DocuPrint 204 is the ideal printer for you.

- 2400 x 600 dpi Resolution
- USB 2.0, IEEE 1284, Ethernet 10/100
- Compatible with Win9x/ME/2000/XP and Mac
- 20 ppm Connectivity
- 250 Sheet Tray

$182 | SAVE $27 off RRP | WebCode: FXP0204

Epson Perfection V200 Scanner

The Epson Perfection V200 Photo flatbed scanner is sleek and stylish in appearance and contains a Matrix CCD sensor that features an Optical Resolution of 4800dpi, an Optical Density of 3.2 Dmax and Transparency Unit for film scanning.



$222 | SAVE $27 off RRP | WebCode: EPS0200

HP P2014 A4 Mono Laser Printer

The HP LaserJet P2014 printer series is equipped to handle your most demanding workloads with remarkable ease and functionality.

- Boost office productivity with fast print speeds up to 24 ppm
- Process large, graphic -intensive files fast with 264 MHz processor

P2014N (HPL4510) **$523**

$445 | SAVE $77 off RRP | WebCode: HPL4500

Fuji Xerox DocuPrint 340A A4 Mono Laser Printer

The Phaser 8560 printer gives busy workgroups a fast, affordable, easy-to-use colour printer that can expand from a desktop model to a four-tray, floor-standing powerhouse.

- 24 ppm Mono, 30 ppm Colour
- 1200 x 1200 dpi Resolution
- Ethernet, USB, Parallel
- Duplex Print Module
- Memory: 64MB/320MB
- Max. duty cycle: Up to 75,000 pages

$1270 | SAVE $154 off RRP | WebCode: FXP0346

HP G4010 Photo Scanner

World's First 6-colour Scanner

Enjoy high-definition scan quality that delivers vivid and realistic images with each scan. With HP's exclusive 6-colour, 96-bit photo scanning, you can make sure your photos and images are as true to the original as possible.

In addition to amazing colour accuracy, you can capture every fine detail with up to 4800 x 9600 dpi resolution.

$344 | SAVE $25 off RRP | WebCode: HPS1957

Dymo LabelWriter 400

The LabelWriter 400 is one of the fastest printers for printing great looking labels in a second. Print directly from MS Word, MS Outlook and Palm Desktop. Creating labels for envelopes, packages, files, media and name badges are just the beginning.

- 300 dpi Resolution
- USB Connection
- PC and Mac compatible

DYMO

$147 SAVE $33 off RRP
WebCode: DYM0012

Fuji Xerox Phaser 8560DN - A4 Colour Office Printer

The Phaser 8560 printer gives busy workgroups a fast, affordable, easy-to-use colour printer that can expand from a desktop model to a four-tray, floor-standing powerhouse.

- Up to 85,000 pages maximum monthly duty cycle
- Print speed of 30 ppm
- First page out in 5 seconds
- Resolution up to 2400 dpi
- Memory 256MB standard, 1GB MAX
- Adobe PostScript 3 & PCL5c
- Duplex printing

8560DT (FXP0563) $2839

HOT

Fuji Xerox Printers

$1911 SAVE $283 off RRP
WebCode: FXP0562

NETGEAR FWG114P ProSafe Wireless Firewall + USB Print Server

One powerful device, NETGEAR's ProSafe Wireless Firewall + USB Print Server consolidates multiple connection features and gives users the ability to share secure wired and wireless network connections. Built in to this firewall router is a 4-port 10/100 switch, an IEEE 802.11g wireless 54 Mbps access point, and an easy connection USB print server port that supports multiple print jobs simultaneously.

NETGEAR

$187 SAVE $52 off RRP
WebCode: NTG7125

Fuji Xerox Printers DocuPrint C2100 A4 Colour Laser Printer

- 25ppm black 17ppm colour
- First page out in 17 seconds
- Memory Max 128 MB/ 640MB Ram
- Res: 9600x600 dpi
- Up to 60,000 pages maximum monthly duty cycle

BONUS
Duplex Value $248
ends 31st December
Fuji Xerox Printers
*See www.csw.com.au/promotios

BONUS OFFER

$676 SAVE $149 off RRP
WebCode: FXP2100

Samsung CLP 650n Colour Laser Printer

- Single Pass
- Fast printing speed Colour 20 ppm, Mono 20 ppm
- High Quality Colour prints up to 2,400 dpi x 600 dpi
- 10/100 network connection
- Small footprint for user's environment
- 250-sheet Tray
- 100-sheet Multi purpose Tray

*See www.csw.com.au/promotios

BONUS OFFER

*You Pay $669
$569
After $100 Cashback

SAVE $830 off RRP
WebCode: SAM6500

Linksys WPS54G Wireless-G Print Server

The Linksys Wireless-G PrintServer lets you connect a USB printer directly to your network, eliminating the need to dedicate a PC to print sharing chores.

- Share a printer with everyone on your network – works with most USB 1.1 or 2.0 printers
- Connects your printer directly to the network by 10/100 wired Ethernet or 54Mbps Wireless-G (802.11g)

LINKSYS

$108 SAVE $21 off RRP
WebCode: LNK0255

Brother HL- 4040CN - A4 Network Colour Laser Printer

- Up to 20 ppm Mono & Colour Printer
- Up to 2400 x 600 dpi resolution
- High Speed USB 2.0 & Ethernet 10/100
- 64MB (expandable - 576MB)
- PCL6 Emulation
- 250 sheets tray

brother

$726 SAVE $173 off RRP
WebCode: BRT0130

HP 2700 A4 Color LaserJet Printer

Get the fast HP black-and-white laser experience you expect plus added colour capability with printing speeds up to 20 ppm (up to 15 ppm for colour). Print documents right away with the Instant-on technology that delivers a fast first page from PowerSave mode.

- 100-sheet multipurpose tray 1 for special paper
- 250-sheet tray 2
- 600 x 600 dpi
- Up to 3000 pages per month duty cycle

hp

$912 SAVE $137 off RRP
WebCode: HPL8724

Colour Laser & Multifunction Printers

Fuji Xerox Printers DocuPrint C2090FS A4 Colour Multifunction Printer

Copy / Scan / Print / Seven Scanning Functions

- Great Print Speed of up to 5ppm Col 25ppm monochrome
- Copy Speed of up to 5ppm col/20ppm mono
- Scan Resolution: Optical: 1200 x 1200 dpi Enhanced: up to 4800 x 4800 dpi
- Software: DocuWorks 5.0, Acrobat Reader 5.05
- Paper Input Capability of 200 sheets
- Memory (Std/Max): 96MB / 352MB

Fuji Xerox Printers

$1136 SAVE $182 off RRP WebCode: FXP2090

D-Link Wireless 108G Multifunction Print Server

- 4 USB 2.0 Printer Connections
- Share Up to 4 USB Printers, Multifunction Printers
- Supports Scanning Function of Multifunction Printers
- Easy Control & Printing of Scanned Documents
- Integrated 802.11g Wireless Interface
- Ethernet Connection to Wired Network

D-Link

$191 SAVE $48 off RRP WebCode: DLK9211

Fuji Xerox WorkCentre 3119 A4 Mono Multifunction Printer

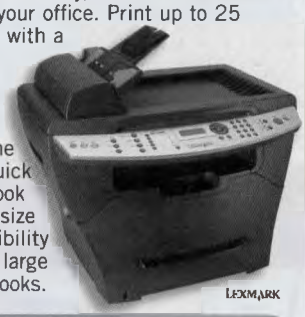
- A4 Mono Laser Printer, Copier & Colour Scanner
- 600x600dpi printing and copying Up to 10,000pages/month
- Scan and Edit Scan to Desktop
- Bundled with Software Nuance
- PaperPort SE 10.0
- 19 ppm/ cpm

Fuji Xerox Printers

$148 SAVE $127 off RRP WebCode: FXP0235

Lexmark X342n A4 Laser Multifunction Printer

Easy-to-Use: Consolidate copy, fax, scan and print on an Ethernet-ready, laser All-in-One and free up space in your office. Print up to 25 pages per minute with a time to first print as quick as 10 seconds Copy up to 25 pages per minute with a time to first copy as quick as 12 seconds Book Hinges and legal-size glass provide flexibility to scan and copy large documents and books.



LEXMARK

$460 SAVE $189 off RRP WebCode: LEX0142

HP Superior Laser Paper Glossy (Q6616A)

HP Superior Laser Paper Glossy provides the weight band and finish of high-quality marketing collateral. The two-sided coating provides a bright, super-smooth, glossy finish that produces photos and images with professionally-printed quality.

- Double sided glossy coating
- 150 A4 sheets
- 160gsm

$26 SAVE $4 off RRP WebCode: HPD6616

HP LaserJet 3055 A4 All - In - One

Work just got a little simpler with an all-in-one that integrates all of your most essential daily office printing, faxing, scanning, and copying needs.

- Up to 1200 x 1200 dpi
- 10/100 wired Ethernet network connectivity Hi-Speed USB
- Windows 2000/XP Home/XP Professional/ Server 2003/Windows Vista Ready/Mac OS X v 10.3 or higher
- Up to 18 ppm
- 260 Sheet Tray

$638 SAVE $41 off RRP WebCode: HPL6530

Brother MFC-9440CN Digital Multifunction Centre

- A4 Colour Laser Printer, Copier & Colour Scanner
- 2400 x 600dpi printing and copying Up to 1200 x 600dpi
- sanning up to 16ppm/ mono/colour
- Fax- Modem Super G3 33,600bps - Approx 3 sec. transmission
- Grey Scale - 256 shades of grey

brother

FREE Brother QL-500 Label Printer $149 Value

$1188 SAVE $311 off RRP WebCode: BRT0152

HP Toner Cartridges

Description		Webcode	Price
C3906A	Black Toner	HP741	$92
C4092A	Black Toner	HPL4092	$80
C4096A	Black Toner	HPL4096	$136
C4127X	Black Toner	HPL4129	$173
C4129X	Black Toner	HPL4131	$222
C7115A	Black Toner	HPL7115	$84
C7115X	Black Toner	HPL7117	$104
C8061X	Black Toner	HPL8063	$173
C9720A	Black Toner	HPL9720	$210
C9721A	Cyan Toner	HPL9721	$284
C9723A	Magenta Toner	HPL9723	$284
Q1338A	Black Toner	HPL1338	$208
Q2610A	Black Toner	HPL2610	$163
Q2612A	Black Toner	HPL2612	$95
Q2613A	Black Toner	HPL2613	$97
Q2613X	Black Toner	HPL2614	$121
Q2670A	Black Toner	HPL2670	$179
Q2683A	Magenta Toner	HPL2683	$231
Q3960A	Black Toner	HPL3960	$112
Q3961A	Cyan Toner	HPL3978	$135
Q3962A	Yellow Toner	HPL3979	$135
Q3963A	Magenta Toner	HPL3981	$135
Q3972A	Yellow Toner	HPL3976	$100
Q3973A	Magenta Toner	HPL3977	$100
Q5942A	Black Toner	HPL5942	$202
Q5942X	Black Toner	HPL5943	$306
Q5945A	Black Toner	HPL5945	$276
Q5949A	Black Toner	HPL5949	$97
Q5949X	Black Toner	HPL5994	$177
Q5950A	Black Toner	HPL5950	$241
Q5951A	Cyan Toner	HPL5951	$341
Q5952A	Yellow Toner	HPL5952	$341
Q5953A	Magenta Toner	HPL5953	$341
Q6000A	Black Toner	HPL6060	$103
Q6001A	Cyan Toner	HPL6061	$112
Q6002A	Yellow Toner	HPL6062	$112
Q6003A	Magenta Toner	HPL6063	$112
Q6470A	Black Toner	HPL6470	$179
Q6511A	Black Toner	HPL6511	$168
Q7581A	Cyan Toner	HPL7581	$231
Q7582A	Yellow Toner	HPL7582	$231
Q7583A	Magenta Toner	HPL7583	$231

HP Ink Cartridges

Description		Webcode	Price
HP 78	Tri-Colour	HPD6578	$46
HP 23	Tri-Colour	HPI1826	$46
HP 45	Black	HPD095	$42
HP 15	Black	HPD6645	$39
HP 28	Tri-Colour	HPI8782	$30
HP 27	Black	HPD8772	$26
HP 56	Black	HPD6656	$28
HP 57	Tri-Colour	HPI6657	$46

great summer GIVEAWAYS!

Purchase
5 specially marked HP Toner Cartridges

Receive
A Nintendo Wii or $100 cashback

RRP $399

Purchase
15 specially marked HP Toner Cartridges

Receive
Your choice of a 22" TFT with HDMI, Presario C710TU or $350 cashback

RRP $799 RRP $899

To take advantage of this great offer,

Purchase from our range of 99 specially marked original HP Toner Cartridges listed below, and redeem between 01 October 2007– 31 Ja■■■■ 2008:

C4149A, C4150A, C4151A, C4152A, C4191A, C4192A, C4193A, C4194A C8550A, C8551A, C8552A, C8553A, C9700A, C9701A, C9702A, C9703A C9720A, C9721A, C9722A, C9723A, C9730A, C9731A, C9732A, C9733A, Q2670A, Q2671A, Q2672A, Q2673A, Q2681A, Q2682A, Q2683A, Q3960A, Q3961A, Q3962A, Q3963A, Q3971A, Q3972A, Q3973A, Q6000A, Q6001A, Q6002A, Q6003A, 92274A, 92275A, 92291A, 92295A, 92298A, 92298X, C3900A, C3903A, C3903F, C3906A, C3906F, C3909A, C3909X, C4092A, C4096A, C4127A, C4127X, C4129X, C4182X, C7115A, C7115X, C8061A, C8061X, C8543X, Q1338A, Q1339A Q2610A, Q2612A, Q2613A, Q2613X, Q2624A, Q5942A, Q5942X, Q5945A, Q5949A, Q5949X, Q6511A, Q6511X, Q5950A, Q5951A, Q5952A, Q5953A, Q6460A, Q6461A, Q6462A, Q6463A, Q7560A, Q7561A, Q7562A, Q7563A, Q7581A, Q7582A, Q7583A, Q6470A, Q6471A, Q6472A, Q6473A

see www.csw.com.au/promotions for more details

YOUR MEMORIES...
Purchase
Any 2 specially marked HP Ink packs
Look for the pink banner on the packaging as pictured below.
BONUS (via redemption)
30 Page hard cover Photo Book from Snapfish by HP
Valued at $49.70*
Plus $4.95^ postage and handling per offer; Snapfish only accepts payments online by credit card (Visa, Mastercard or Amex).

...bound and brought to life!

Design it your way! Give your memories a life of their own by creating a personalised Photo Book with great photo-quality printing, assembled in a professionally-bound coffee table book of your own!

snapfish by hp

To receive your 30 page hard cover Photo Book from Snapfish

Purchase any 2 specially marked HP Ink packs from October 1st 2007 - January 31st 2008 (look for the pink banner on the packaging as pictured overleaf). The Eligible HP Inkjet Cartridges bearing the promotional tag for this Promotion are:
C6578DA, C1823DA, 51645AA, C6615DA, C8728AA, C8727AA, C6656AA, C6657AA, Y2025AA, Y2016AA, Y2017AA

see www.csw.com.au/promotions for more details

Verbatim 4GB Secure Digital (SDHC) Card

SD is an increasingly popular storage choice among Digital Still Camera, Digital Video Camera, MP3 player, and handheld device makers.

- Ultra Compact (Postage Stamp Sized) Form Factor
- Write Protect Switch prevents accidental data deletion
- Fully Compliant with all applicable Secure Digital Standards
- Verbatim Limited Lifetime Warranty

1GB (VBM6033) $17
2GB (VBM6034) $31

Verbatim

$63 SAVE $11 off RRP
WebCode: VBM6035

Verbatim 2GB Mini Secure Digital (SD) Card

MiniSD is an increasingly popular removable storage solution for mobile devices. By simply adding or upgrading to a higher capacity miniSD card, you can easily increase your storage capacity for files, video, images, games and music. Verbatim miniSD cards are compatible with all miniSD slot equipped mobile devices.
By using the included miniSD to SD Adapter, you can also use the miniSD card in any SD slot equipped camera, card reader or computer.

1GB (VBM6036) $19

Verbatim

$33 SAVE $5 off RRP
WebCode: VBM6037

GoldX USB to IEEE1284 Parallel Converter

USB to parallel converter cable that allows you to connect an IEEE-1284 parallel printer to a USB port on a computer.

- IEEE-1284 Nibble Mode Compatible
- Bus Powered (From PC's USB Host Adapter via Connecting Cable)
- Foil and Braid Shielding To Reduce EMI/RFI Interference

$42 SAVE $7 off RRP
WebCode: COM0213

Verbatim 4GB Compact Flash (CF) Card

Verbatim Compact Flash Memory Cards are the perfect storage solution for digital devices that need high capacity flash memory. Each card features an integrated controller, which performs the flash management and interface functions, and is optimised for highest performance. Verbatim Compact Flash Memory Cards can be used in any device containing a Compact Flash slot and are 100% compatibility guaranteed.

- Rugged - withstands up to 2000 G's operating shock
- Data Transfer rates: 12MB/sec (to host); 10MB/sec (from host)- 40X
- Verbatim Lifetime Warranty

1GB (VBM6058) $27
2GB (VBM7012) $47

Verbatim

$77 SAVE $11 off RRP
WebCode: VBM6056

Excel DVD–R 8X 50pc Spindle

The ideal choice for high resolution video and images. Create, edit and archive home movies & digital photos while storing and accessing data from one disc. DVD–R discs capture 4.7GB.
white Printable surface.

$19 SAVE $20 off RRP
WebCode: EXC0001

Imation CD-R Inkjet Printable 50 Spindle

Images, music, and more

Imation CD-R discs store data swiftly and permanently with 1x to 52x write speeds. Our media offers you great performance with low failure rates.

imation

$24 SAVE $6 off RRP
WebCode: MMM0413

Imation DVD+R Inkjet Printable 50 Spindle

Print directly onto Imation inkjet printable CD or DVD discs using a CD/DVD printer. Imation printable discs offer outstanding graphics reproduction and system compatibility.

imation

$35 SAVE $3 off RRP
WebCode: MMM6353

Verbatim CD/DVD Markers 4 Pack

- Pack of 4 coloured CD/DVD Markers (one of each blue, black, green and red)
- Water Based
- 0.5mm fine-point soft tip
- Permanent, non-toxic
- Guaranteed 100% safe for writing on CDs and DVDs

Verbatim

$5 SAVE $1 off RRP
WebCode: VBM1830

IRISPen 6 Express

The IRISPen 6 is a pen scanner that works just like a highlighter simply slide it over printed information from newspapers, magazines, faxes, letters, etc...What you get is real and editable text right at your cursor.

IRISPen Executive 6 (PWR0241) $278

$182 | SAVE $17 off RRP | WebCode: PWR0242

IRISCard Mini 4 Business Card Scanner

Scan your business cards into Outlook, Address Book and many more!

The IRISCard Mini 4 is incredibly fast, super portable and totally accurate! The IRISCard quickly scans your paper business cards, captures the information they contain and creates electronic contacts in your favourite contact manager.

Fast Greyscale scanning

Light, small and USB, the IRISCard Mini 4 offers a fast greyscale scanning

217 countries

Capture all the information from business cards coming from all over the world.

Easy export

Easily export your business cards into MS Outlook, MS Outlook Express, Address Book, vCard, Pocket PC, Palm.

Convenient export to Excel

Use your contacts in Excel to organize mail merges, search and sort your contacts, etc.

IRISCard Pro 4 (PWR0243) $278
IRISCard Corporate 4 (PWR0245) $418

$182 | SAVE $17 off RRP | WebCode: PWR0244

Belkin F3U150 - USB 2.0 File Transfer Cable

The Belkin USB 2.0 File Transfer Cable provides the perfect solution that allows you to copy files from PC to PC without the need to install drivers when used with Windows ME, 2000 or XP. Fantasic for the mobile user to transfer files to and from your laptop without the need of a complicated network setup. Designed with the computer novice in mind, it couldn't be easier!

BELKIN

$65 | SAVE $34 off RRP | WebCode: BEL1150

Wacom Bamboo Pen Tablet 4x6 A6 Black

The sound of pen on paper is the sound of your thoughts coming to life. It's time to bring that experience by your PC.

Designed to make personalisation simple, Bamboo bridges the gap between the real world and the digital world. Personalize your emails, documents, digital photos, even your online chat experience.

Rediscover the joy of writing by hand, Rediscover the Personal in PC, Bamboo reinvents the pen for the 21st Century.

Bamboo's award winning design was conceived to make your experience as natural as using an ordinary pen. The ergonomic shape of the pen and smooth curves of the tablet will help say goodbye to sore hands and fingers that accompany extended use of a PC mouse.

WACOM

$117 | SAVE $12 off RRP | WebCode: WAC2002

Wacom Intuos3 6 x 8 Tablet

Seriously-enhanced, Interactive & Creative

Intuos3 is the industry standard graphics tablet for digital art, animation, image editing and computer graphics. The Intuos3 features ExpressKeys and Touch Strip(s) can substitute all common modifiers and shortcuts, whilst the ergonomic pen delivers professional level functionality.

WACOM

$484 | SAVE $65 off RRP | WebCode: WAC0630

Logitech V320 Cordless Optical Mouse for Notebooks - Black

With rubber side grips and a sculpted shape find comfort anywhere you go with a cordless notebook mouse and storable micro-receiver. Soft side grips, finger grooves, and contoured shape give you more support and control with either hand.

logitech

$48 | SAVE $21 off RRP | WebCode: LOG3645

Microsoft Basic Optical Mouse - Black

Microsoft Optical Technology replaces the traditional mechanical mouse ball for greater accuracy and control.

- Easy and comfortable to use, Basic Optical Mouse is a good choice for value.
- Scroll Wheel to move through your documents quickly
- Get a grip with a comfortable design created for either hand.
- No mouse ball. Optical sensor delivers greater accuracy and control.

Microsoft

$21 | SAVE $4 off RRP | WebCode: MST8404

Logitech MX Air Rechargeable Cordless Air Mouse

On your desk, advanced laser technology gives you precise tracking and instant response. In the air, innovative Freespace motion sensing transforms hand motions into natural, responsive cursor controls. Sit back and listen to music, browse photos, or surf the Web—from your desk or across the room.

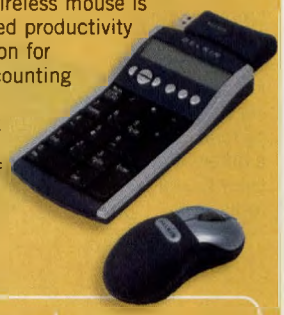
- Laser performance: On your desk, enjoy laser-precise tracking and instant response.
- Freespace motion sensing: In the air, use MX Air to browse and play your favourite media. The sensor transforms hand motions into natural, responsive cursor controls. Adjust volume by waving to the right or left; skip tracks with a flip of the wrist.
- Scroll panel: Experience hyper-fast scrolling at the touch of a finger—on your desk or in the air.

Logitech

$166 | SAVE $63 off RRP | WebCode: LOG3651

Belkin Wireless Calculator / Keypad with Wireless Mouse Bundle

The Wireless USB Mini Keypad with calculator and wireless mouse is finished, improved productivity and smart solution for spreadsheet, accounting and financial applications that require fast and accurate entry of numeric data.



BELKIN

$80 | SAVE $20 off RRP | WebCode: BEL2926

Microsoft Wireless Desktop 1000

Microsoft Wireless Optical Desktop 1000 offers a complete desktop solution. You get the features that make life easier, like wireless freedom, precision optical performance, and one-touch Hot Keys. All that, plus the reliability you expect from Microsoft, makes Wireless Optical Desktop 1000 one very good deal.

Microsoft

$59 | SAVE $20 off RRP | WebCode: MST8356

Logitech Cordless Desktop EX 110

Enhance your workspace and your productivity with the most reliable way to go wireless. You can afford to upgrade your work style with this all-in-one solution.

- Reliable Wireless: Enjoy fast 27 MHz wireless performance.
- One-Touch Controls: Access music, video, volume, email, internet and more.

$62 | SAVE $17 off RRP | WebCode: LOG3507

Logitech 2.4GHz Cordless Presenter

Take advantage of its 50 foot range to control your presentations while moving around an auditorium with confidence. A built-in LCD timer with vibration alerts helps you effectively manage your time. Storable receiver, carry case and On/Off button for complete portable control.

$75 | SAVE $55 off RRP | WebCode: LOG3495

Microsoft Wireless Laser Desktop 4000

Microsoft

- Zoom Function
- 4-Way Scrolling
- Comfort Curve Keyboard Layout
- Wireless Freedom
- Longer Battery Life
- Smart Receiver
- Customisable Buttons

$104 | SAVE $25 off RRP | WebCode: MST8460

Logitech Cordless Desktop MX 5000 Laser

It's the smart desktop that combines an LCD keyboard display, a high-speed Bluetooth wireless hub with SecureConnect technology, the precision of a MX Laser mouse, and innovative touch-sensitive media controls.

Logitech

$198 | SAVE $72 off RRP | WebCode: LOG3530

Kaiser Baas 1.5" Digital Photo Key Ring – Black

The Kaiser Baas Digital Photo Key Ring is the ideal gift. It is perfect for displaying holiday photos, baby shots or party pictures and presenting them to friends and family in a slideshow.
Smaller than a matchbox, it can store up to 70 pictures, offering a different image every time a person looks at it.

$29.95 WebCode: KAB0007

Sarotech 2.5" abigs Multimedia Player (No HDD)

DVP-260 is a stylish and compact portable multimedia player. It gives you the freedom to playback all your favourite video and audio files anywhere you go – at home, hotel room, in the office or even in the car! The DVP-260 is the first of it's kind to support both 5.1Ch coaxial and optical sound among 2.5" players. In addition to this you can the sound from without audio cables by taking advantage of the unit's built-in FM Transmitter. Useful converting utilities are included. 2 Year Warranty.

80GB (PWR0200) **$242**
120GB (PWR0201) **$286**
160GB (PWR0202) **$323**

2 Year Warranty

$158 SAVE $41 off RRP WebCode: PWR0199

Olin 7" Digital Photo Frame

- 7 Inch Digital Photo Frame
- Picture, Audio & Video Playback
- Clock & Calender Function
- Horizontal & Vertical Display
- Zoom & Rotate Function
- Built In Stereo Speaker
- Remote Included

$115 SAVE $32 off RRP WebCode: OLI0008

Microsoft LifeCam VX-6000

Communicate with friends and family as if they were in the room with you. See the smiles clearly with 640 x 480 pixel video resolution. High Definition video and photos show you in the best light. See the smiles clearly with up to 1.3MP Video Calling.

25%* Cash Back

Microsoft

*See www.csw.com.au/promotions for terms and conditions.

You Pay $94
$59 After Cashback
SAVE $35 off RRP WebCode: MST8425

Logitech QuickCam Pro 9000

With the Logitech QuickCam Pro 9000 you can enjoy image-perfect detail and clarity. Carl Zeiss optics and autofocus keep images razor-sharp, even in extreme close-ups.

- Ultra-high resolution 2-megapixel sensor with RightLight 2 Technology
- 24-bit true color
- Up to 1600 x 1200 pixels (HD quality) (HD Video 960 x 720 pixels)
- Up to 30 frames per second
- 8 million pixels still image capture
- Built-in microphone with RightSound Technology

$108 SAVE $41 off RRP WebCode: LOG3650

Kodak EasyShare Digital Picture Frame (10")

Life in motion - frame by frame.

- Start viewing your pictures and videos right away
- Play MP3s with built-in speakers
- Full of features such as Wi-Fi (10" Only) and editing capability

7" (KOD0070) **$183**
8" (KOD0080) **$277**

Kodak

$369 SAVE $30 off RRP WebCode: KOD0100

Sarotech HardBox Metal Hard Drive Enclosure (500GB)

The stylish Sarotech HardBox Metal enclosures allow you to store your most important music, photos videos and much more. Designed to house any 3.5 inch SATA hard drive with capacity up to 750GB. Plug into PC or MAC, and then transfer at high speeds via USB 2.0, Firewire 400, Firewire 800 or eSATA. No matter which interface you require this "Triple Interface" wonder can certainly do the job.

- Free Carry Bag
- Luxurious design with advanced aluminium case
- Built in Power Supply
- Fanless - low noise
- Chipset - Oxford 924DS
- Compatible with Windows, Mac OS and Linux

USB 2.0 Only (320GB) (PWR0253) **$172**
USB 2.0 & FW400 (320GB) (PWR0252) **$208**

2 Year Warranty

$328 SAVE $21 off RRP WebCode: PWR0251

Neuros OSD

Record, Play, Stream and Share video, music and photos between home entertainment centres, PCs and portables such as laptops, iPods, smartphones, and PSPs.. In addition to watching YouTube and other downloaded or PC-based content on your TV, users can also easily record TV shows, videos, and home movies from virtually any source (cable or satellite TV, DVD, DVR/TiVoTM, VCR, game console, camcorder, etc) to enjoy them anytime, anywhere on devices they already own.

$328 SAVE $21 off RRP
WebCode: LAK0013

USB Plasma Magic Ball

Powered by your USB port (or 2 AA batteries) this Plasma ball light will create a unique and fun environment on your desk or workstation. Watch with amazement as the electricity follows your finger tips across the 3-inch glass ball. This USB Lightening Ball is small enough to not take up too much desktop space, and is big enough to amaze your co-workers with its awe inspiring light show.

$17 SAVE $2 off RRP
WebCode: ANY0487

Ziova CS505 Media Player

The ZIOVA Clearstream CS505 High Definition Network Media Player gives users four connectivity options in one unit: wireless networking, Ethernet wired networking, optical disc playback and USB 2.0 hard drive connection. It has unprecedented video and audio file format support for both the enthusiast and the home user.

CS510 (ZIO0002) $427

$516 SAVE $83 off RRP
WebCode: ZIO0001

DViCO TVIX PVR4130 with in-built HD Tuner HDMI

- Ultimate Digital Jukebox for Movie, Music, Image and DVD Backup files
- Decoding and viewing almost all formats of MPEG1/ MPEG2/ MPEG4/ XVID files
- Support high-definition AVI files up to 1920 x 1080

$597 SAVE $48 off RRP
WebCode: DVC0034

USB Fibre Optic Christmas Tree

Ideal for Christmas time, this USB Fibre Optic Christmas Tree is both vibrant and festive. Wow your family and friends with this USB powered Fibre Optic Christmas Tree. Standing at 10 inches tall and with 7 colours cycling through you will have a Christmas decoration which you will always look forward to setting up each year.

$17 SAVE $2 off RRP
WebCode: ANY0488

Dazzle TV Stick 71e DVB-T USB Receiver

Dazzle TV Stick is an affordable USB 2.0 TV tuner that lets you watch, TimeShift and record digital terrestrial TV on your PC. You can schedule recordings using the EPG or start recording immediately at the touch of a button. Record directly in DivX format which is compatible with most portable media players.

$72 SAVE $12 off RRP
WebCode: LAK0012

Compro VideoMate E700 Digital PCI-E Digital Tuner

Compro VideoMate E700 is a dual PCI-E DVB-T tuner card, which brings 2 high-quality main channels digital terrestrial TV watching on your desktop PC, and turns your computer into a home entertainment center by bringing digital TV viewing, power up scheduling, remote power on/off, and personal digital video recording (DVR) capabilities.

$157 SAVE $22 off RRP
WebCode: ANY0486

Apple TV 160GB

iTunes to Apple TV, wire free.
Apple TV connects to your TV via an HDMI port or component video and audio ports. Its built-in, super fast 802.11 wireless capability syncs your iTunes library to any Mac or PC in the house. Best of all, what's on Apple TV stays in sync: Anytime you change your library in iTunes, it changes on Apple TV — wirelessly, automatically.

Authorised Reseller

$583 SAVE $16 off RRP
WebCode: APP0342

Quicken Personal Plus 2008

Easy home finance & investment organiser

Quicken

Provides tools to help you manage your finances, prepare for tax time and plan for the future, plus exclusive tools to help you optimise your investment portfolio and maximise tax-saving opportunities.

- Track all of your personal and business bank accounts, credit cards, income & expenses.

BONUS $50 iTunes Voucher

*See www.csw.com.au/promotions for terms and conditions. Offer ends 29/02/2008

$174 SAVE $15 off RRP WebCode: QUI0145

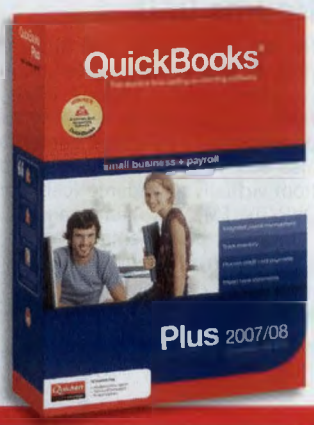
QuickBooks Plus 2007/08

Timesaving features and powerful functionality make this a must-have for efficiency-minded businesses. It's designed for businesses that track payroll.

- Integrated payroll management
- Track inventory
- Process credit card payments
- Import bank statements
- Track GST & BAS
- Keep track of your business with over 100 reports and graphs
- Compatible with Microsoft Windows 2000/XP/Vista
- 12 months free technical phone support and upgrades

Upgrade (QUI0131) $367
Subscription (QUI0134) $240

Quicken



***BONUS Upgrade to QuickBooks 2008/09**

*See www.csw.com.au/promotions for terms and conditions.

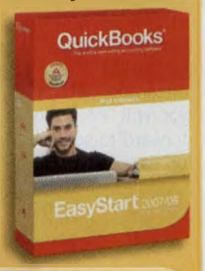
$521 SAVE $58 off RRP WebCode: QUI0128

QuickBooks EasyStart 2007/08

Designed for first-time users of accounting software, EasyStart includes simple, practical tools to manage essential business tasks. No confusing set-up. No unnecessary features. Just common sense tools that are easy to set up and easy to use.

- Manage GST and BAS
- Reconcile your bank account
- Compatible with Microsoft Windows 2000/XP/Vista

Quicken



$112 SAVE $17 off RRP WebCode: QUI0126

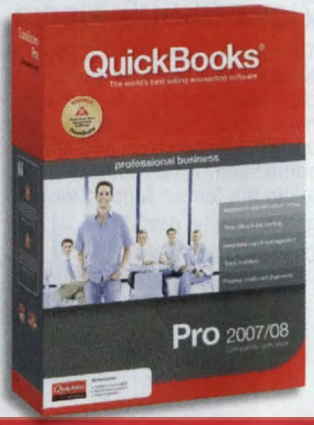
QuickBooks Pro 2007/08

Tracks stock and comes with advanced tools to help increase efficiency and accuracy. Including all the basic accounting functionality of QuickBooks Plus, it adds advanced productivity tools such as integration to the MS Office suite and MS Outlook.

- Time billing & job costing
- Integration with Microsoft Office
- Integrated payroll management
- Track inventory
- Process credit card payments
- Keep track of your business with over 100 reports and graphs
- Compatible with Microsoft Windows 2000/XP/Vista
- 12 months free technical phone support and upgrades

Upgrade (QUI0132) $485
Subscription (QUI0135) $298

Quicken



***BONUS Upgrade to QuickBooks 2008/09**

*See www.csw.com.au/promotions for terms and conditions.

$748 SAVE $101 off RRP WebCode: QUI0129

QuickBooks Accounting 2007/08

Quicken

An effective software package specifically tailored for small businesses that don't need payroll or stock tracking, but do need to track more than money in and money out.

- Compatible with Microsoft Win 2000/XP/Vista.
- *12 months free technical phone support and upgrades.

***BONUS Upgrade to QuickBooks 2008/09**

*See www.csw.com.au/promotions for terms and conditions.

$266 SAVE $33 off RRP WebCode: QUI0127

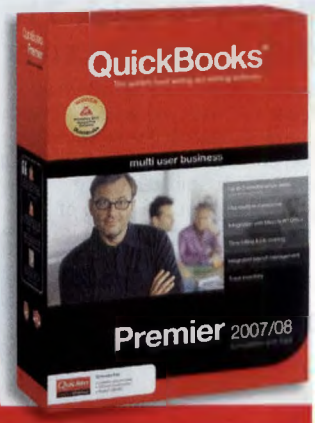
QuickBooks Premier 2007/08 3-User

Industry-specific editions incorporate comprehensive tools to meet your specialised needs, with multi-user capability.

- Up to 3 simultaneous users (upgradeable to 5)
- Industry specific editions
- Time billing & job costing
- Integration with Microsoft Office
- Process credit card payments
- Keep track of your business with over 100 reports and graphs
- Integrated payroll management
- Track inventory
- Compatible with Microsoft Windows 2000/XP/Vista
- 12 months free technical phone support and upgrades

Upgrade (QUI0133) $730
Subscription (QUI0136) $496

Quicken



***BONUS Upgrade to QuickBooks 2008/09**

*See www.csw.com.au/promotions for terms and conditions.

$1267 SAVE $132 off RRP WebCode: QUI0130

MYOB Accounting Plus 17

MYOB Accounting Plus helps you manage your business and your payroll with ease.

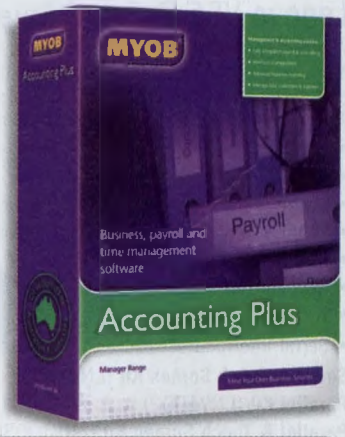
It has the same business management features as MYOB Accounting.

It also:

- Automates your Pay Runs
- Calculates PAYG withholdings
- Works out your superannuation and then updates all your accounts automatically

Features & benefits

- Automate your payroll - no more paperwork, tracking or calculating each time you pay your staff
- Bill for your time the way you want to - track activities and expenses so you know exactly how much each job costs
- Manage all your banking requirements - track as many cheque, credit card and savings accounts as you need



Upgrade (MYB0079) $299

MYOB

$482 SAVE $113 off RRP
WebCode: MYB0075

MYOB JustInvoices

If you are looking for a better way to prepare your invoices, track your sales and calculate GST received, but you're not after a complete business management system, MYOB JustInvoices is just what you need.

SAVE 41%

MYOB

$57 SAVE $42 off RRP
WebCode: MYB0027

MYOB Accounting 17

With MYOB Accounting's inventory management system you'll know what's in stock, what's on order and what's committed. The inventory management system is integrated with the sales and purchases features, so your stock listing is always up to date and accurate.

Upgrade (MYB0078) $228

MYOB

$287 SAVE $62 off RRP
WebCode: MYB0074

MYOB Accounting Plus 17 with Cover

Combine the features of Accounting Plus with MYOB Cover Support. MYOB Cover is a comprehensive support subscription that gives you the software, support and services to keep your business operating efficiently and profitably.

MYOB

$738 SAVE $111 off RRP
WebCode: MYB0076

MYOB FirstEdge - Mac

MYOB FirstEdge captures the personality and functionality of Mac's. You can manage your basic business tasks from the one program designed for small or home-based Australian businesses.

MYOB

$132 SAVE $17 off RRP
WebCode: MYB0005

MYOB Premier 11

MYOB Premier gives you the power to manage even the most complex medium-sized business. Get the complete set of business management features as found in Accounting Plus and also handle transactions and accounts in multiple currencies.

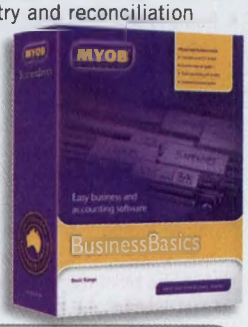
MYOB

$1346 SAVE $149 off RRP
WebCode: MYB0077

MYOB BusinessBasics

Manage all your basic business tasks from the one easy program, designed specifically for small or home-based Australian businesses. Streamline the data entry and reconciliation side of managing your business with MYOB BusinessBasics, and free up your time to focus on running it. MYOB Business Basics is ideal if you:

- Run a small or home based business
- Employ no staff
- Have no inventory



MYOB

$128 SAVE $21 off RRP
WebCode: MYB0004

MYOB AccountEdge 7 - Mac

Manage both your business and payroll with ease using MYOB AccountEdge. It's packed with business and inventory management features to help you better manage your customer and supplier relationships. MYOB AccountEdge streamlines your pay runs and updates all your accounts automatically.

MYOB

$542 SAVE $53 off RRP
WebCode: MYB0080

MYOB RetailManager v10

Welcome to MYOB RetailManager, the complete retail management system.

Our retail software is designed, developed and tested in close collaboration with existing retail businesses. By automating many of your key store procedures and processes.

- Process sales fast, including lay-bys and accounts
- Manage your inventory
- Identify where you're making money
- Comprehensively manage pricing

MYOB

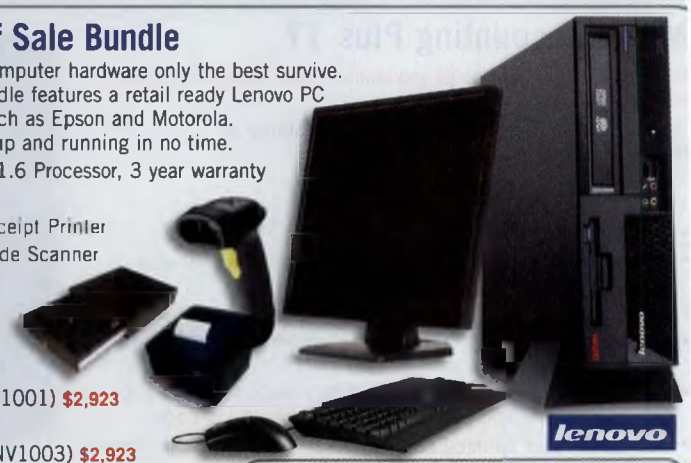
$1695 SAVE $295 off RRP
WebCode: MYB0082

Lenovo V55 Point of Sale Bundle

When it comes to retail POS computer hardware only the best survive. This Lenovo POS hardware bundle features a retail ready Lenovo PC and peripherals from brands such as Epson and Motorola. Just add your software and be up and running in no time.

- Lenovo V55e PC – Core Duo 1.6 Processor, 3 year warranty
- 17" LCD Monitor
- Epson TM-T88IV Thermal Receipt Printer
- Motorola LS2208 USB Barcode Scanner
- Cash Drawer
- Keyboard and Mouse
- Windows XP Pro
- Serial interface

Serial & Touch Screen Kit (LNV1001) $2,923
Parallel Kit (LNV1002) $2,221
Parallel & Touch Screen Kit (LNV1003) $2,923
USB Kit (LNV1004) $2,221
USB & Touch Screen Kit (LNV1005) $2,923



$2221 SAVE $298 off RRP
WebCode: LEN1000

MYOB Retail Hospitality (Retail Manager Included)

Designed specifically for restaurants, bars, cafe's and food outlets, this easy to use table management and Point of Sale application works with MYOB RetailManager's business reporting tools. RetailHospitality allows you to manage sections of your outlet from one or a few networked locations.

MYOB

$2345 SAVE $254 off RRP
WebCode: MYB0083

MYOB RetailReady

MYOB RetailReady contains all the software and hardware you need to turn your PC into an effective Point of Sale (POS) solution. RetailReady processes sales fast, reports GST and performs "Cash Ups" in just a few clicks.

Key Features

- Analyse business data
- Process transactions
- Create a stock list
- Manage customers
- Quality point of sale hardware
- Retail Enhancement & Support
- Integrates with other MYOB Software

Includes MYOB Retail Basics, Barcode Scanner, Thermal Docket Printer and Electronic Cash Drawer

MYOB

$872 SAVE $127 off RRP
WebCode: MYB0040

Quicken Retail Point of Sale 2007/08

Quicken

Retail Point of Sale is retail intelligence at your fingertips, including the features you need to track all of your sales, inventory, purchase orders, customers and accounting. Retail Point of Sale has had years of experience in this industry and comes to you with a wealth of 'functionality'.

***BONUS upgrade to Retail Point of Sale 2008/09**

*See www.csw.com.au/promotions for terms and conditions.

$444 SAVE $55 off RRP
WebCode: QUI0138

Quicken Retail Starter Kit 07/08

If you are opening your store for the first time, or upgrading from a cash register, then Quicken's Retail Starter Kit is what you need. The Retail Starter Kit has been designed to make getting started easy.

- Point of sale and back office management
- Includes thermal receipt printer, cash drawer & barcode scanner
- Integrated EFTPOS
- Touch Screen enabled
- Customer management tools
- Inventory management
- Compatible with MS Win 2000/XP/Vista
- 12 months free technical phone support & upgrades

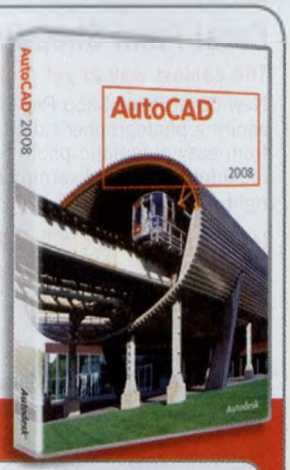
Includes: QuickBooks Plus 2007/08, Retail Point of Sale 2007/08, plus BONUS thermal printer, scanner and cash drawer.

Quicken

$822 SAVE $117 off RRP
WebCode: QUI0137

Autodesk AutoCAD 2008

Meticulously refined with the designer in mind, AutoCAD 2008 propels day-to-day drafting forward with features that increase speed and accuracy while saving time. Annotation scaling and layer properties per viewport minimize workarounds, while text and table enhancements and multiple leaders help deliver an unmatched level of aesthetic precision and professionalism. For the first time, AutoCAD 2008 is available in either 32-bit or 64-bit versions.



Key Features Include

- Annotation Scaling
- Layers per viewport
- Enhanced Tables
- Text & Table Enhancement
- Multiple Leaders

Autodesk AutoCAD 2008 Student Version (14 months) (AUT0173) $154
- 14 month license - students course record enrolment confirmation required on purchase

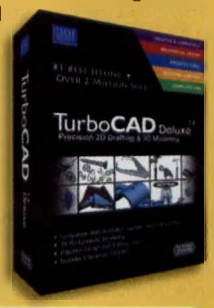
BONUS OFFER!
Buy AutoCAD 2008 and receive a 22" LCD Monitor
*See www.csw.com.au/promotions for terms and conditions.

Autodesk

$6767 | SAVE $273 off RRP | WebCode: AUT0165

IMSI TurboCAD Deluxe 14

Revolutionise the way you design with TurboCAD Deluxe's advanced CAD tools. Create precision 2D drawings, intricate 3D models and utilise powerful photorealistic rendering tools to accurately visualise and present your projects. It is packed with hundreds of advanced design tools typically found in programs costing hundreds or even thousands, but is simple enough for anyone.



IMSI

$178 | SAVE $21 off RRP | WebCode: IMS0038

Autodesk AutoSketch 9

AutoSketch software provides a complete set of CAD tools for creating professional-quality precision drawings. A series of tutorials get you up and running fast. A Microsoft Windows XP, like interface provides a familiar environment for straightforward drafting.

Autodesk

$262 | SAVE $13 off RRP | WebCode: AUT0077

Autodesk AutoCAD LT 2008

Streamline your day-to-day tasks with AutoCAD LT 2008 software, the world's number-one-selling 2D drafting and detailing product. Daily work is simpler thanks to tools built with the drafter in mind.

Upgrade
(AUT0164) $814

Autodesk

$1984 | SAVE $216 off RRP | WebCode: AUT0163

Autodesk AutoCAD Revit Architecture Suite 2008 Student

With the Autodesk Revit parametric building modeller, you don't have to deal with tedious documentation coordination because the software does it for you.

14 month license - students course record enrolment confirmation required on purchase

Autodesk

$154 | SAVE $11 off RRP | WebCode: AUT0180

Autodesk Inventor 2008 Student

Autodesk Inventor offers improved workflow functionality and surface-solids modelling tools, increased support for DWF files including password support and print ready format, and key enhancements.

14 month license - students course record enrolment confirmation required on purchase

Autodesk

$154 | SAVE $11 off RRP | WebCode: AUT0181

Autodesk

Autodesk Subscription

Simplify your technology upgrades and boost your design productivity with the complete software, support, and training package from Autodesk Subscription.

Autodesk Subscription is a maintenance program giving you access to Autodesk's latest software releases and enhancements that keep your design tools up-to-date and make the most of your software investment. With software extensions, downloadable e-courses, a single contract number to manage your software, and the option of Autodesk Direct Online Support, you can simplify your software upgrades and minimize disruptions to your workflow.

Get up to date and up to speed now with Autodesk Subscription. All this for a single annual fee when you buy AutoCAD 2008 or AutoCAD LT 2008 software.

CSW-IT
csw-it.com.au
1300 761 761

QuarkXPress 7

Fast. Simple. Robust.

It's the industry standard

More people use QuarkXPress for creative design and page layout than any other software in the world. Period. Millions of users are now discovering the power of the new QuarkXPress 7, the most important QuarkXPress upgrade ever.

All the bells and whistles

QuarkXPress 7 boasts 160 new, innovative features. Take control of transparency with total independence. Create visually stunning graphics from within QuarkXPress 7 – no need to switch to another application. Use the revolutionary Composition Zones functionality to collaborate with multiple users anywhere in the world on the same layout at the same time. Optimize your production workflows with new Job Jackets technology. Work faster with a streamlined user interface and dynamic design tools.

Acadamic (QUA0045) **$235**

Upgrade (QUA0042) **$472**

***FREE**
Quark Interactive Designer and Quark XPert Tools Pro included

$1437 SAVE $62 off RRP
WebCode: QUA0040

Introducing the new Quark Volume Licensing Program (QVLP) for commercial businesses

- Simplify purchases with one easy serial number
- Reduce costs for managing multiple licences
- Protect investment with Quark Assurance
- Save money with volume price breaks starting with just 2 licences

QVLP licences can also be covered by Quark Assurance, which provides free upgrades and updates for a 24-month period at an additional affordable cost.

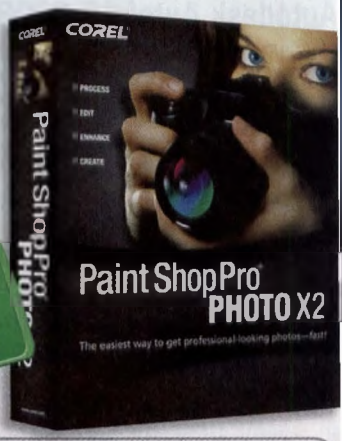
CSW-IT
csw-it.com.au
1300 761 761

Corel Paint Shop Pro Photo X2 for Windows

The easiest way to get professional-looking photos - fast!

New Corel Paint Shop Pro Photo X2 is the ideal choice for any aspiring photographer's digital darkroom. It's filled with everything from easy automatic photo fixes to precision editing tools. It even includes a built-in Learning Center to help new users get started right away!

Includes FREE Media One Plus download, Special Effects Filters by Nik, and 2 hours of video Training!



CHRISTMAS GIFT IDEA

Bundled with Ulead VideoStudio 11.5 Plus

$199 SAVE $199 off RRP
WebCode: COR0103

COREL

$143 SAVE $56 off RRP
WebCode: COR9000

Corel MediaOne Plus for Windows

Corel MediaOne is fast, fun, and easy photo and video software that reflects Corel's ongoing engagement with our customers. As more and more people use their digital cameras to capture photos and videos, we recognized it was necessary to extend the capabilities of Corel Snapfire - our entry-level digital imaging product to more accurately reflect the evolving multimedia needs of today's consumers.

COREL

$69 SAVE $30 off RRP
WebCode: COR8957

Adobe Photoshop Elements 6.0

Make your photos look their best

Create amazing composites with easy-to-use tools Brush away wrinkles, unwanted objects, and other flaws. Make selections in a snap so you can easily adjust specific areas of a photo. Easily adjust skin tones for a more natural look.

Academic (AEP9532) **$93**

Adobe

*BONUS Marie Claire Seasonal Kitchen Cook Book Offer (valued at $59.95) Ends December 31.

*Refer to csw.com.au/promotions

$137 SAVE $32 off RRP
WebCode: ALD9599

CorelDRAW Graphics Suite X3

Transform ideas into professional results with CorelDRAW Graphics Suite X3!

With this comprehensive graphics suite, you can confidently tackle a wide variety of projects from logo creation and Web graphics, to multi page marketing brochures, or eye-catching signs.

Academic (COR8327) **$140**

Upgrade (COR8325) **$277**

COREL

$528 SAVE $221 off RRP
WebCode: COR8334

Adobe Photoshop Lightroom 1.1

Includes flexible image management for multi-computer workflows, improved noise reduction and sharpening technology, Windows Vista compatibility, and more. New Adobe Photoshop Lightroom software is the professional photographer's essential toolbox.

Academic (AEP0028) **$138**

Adobe

$418 SAVE $130 off RRP
WebCode: ALD0053

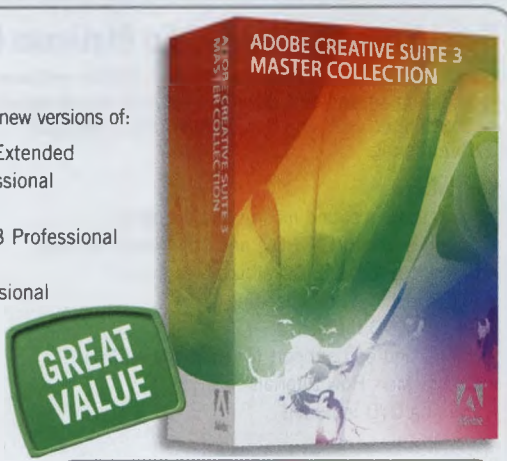
Adobe Creative Suite 3 Master Collection - Windows

Adobe Creative Suite 3 Master Collection combines full new versions of:

- InDesign CS3
- Illustrator CS3
- Dreamweaver CS3
- Fireworks CS3
- Premiere Pro CS3
- Encore CS3
- Photoshop CS3 Extended
- Flash CS3 Professional
- Contribute CS3
- After Effects CS3 Professional
- Soundbooth CS3
- Acrobat 8 Professional

Student - Win (ADS0011) **$697**
Academic - Win (AEP0042) **$1,296**
Upgrade - Win (ALG1036) **$1,999**

Mac versions also available.



GREAT VALUE

Adobe

$3475 SAVE $860 off RRP
WebCode: ALD0073

Adobe Creative Suite 3 Design Standard - Windows

- Acrobat 8 Professional
- InDesign CS3
- Photoshop CS3
- Illustrator CS3

Student - Win (ADS0009) **$280**
Academic - Win (AEP0039) **$529**
Upgrade - Win (ALG1031) **$589**
Mac versions also available.

$1694 SAVE $385 off RRP
WebCode: ALD0071

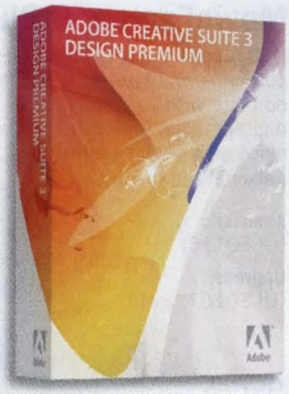
Adobe Creative Suite 3 Design Premium - Windows

Let your ideas take flight with Adobe Creative Suite 3 Design Premium, which equips you to craft your best creative work more easily and efficiently than ever before. From thinking through concepts to finessing production details, you can leverage the intuitive tools in Creative Suite 3 Design Premium to make even your most visionary ideas real.

- InDesign CS3
- Photoshop CS3 Extended
- Illustrator CS3
- Flash CS3 Professional
- Dreamweaver CS3
- Acrobat 8 Professional

Student - Win (ADS0007) **$420**
Academic - Win (AEP0037) **$822**
Upgrade - Win (ALG1027) **$853**

Mac versions also available.



Adobe

$2648 SAVE $471 off RRP
WebCode: ALD0069

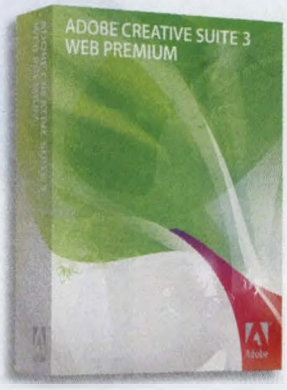
Adobe Creative Suite 3 Web Premium - Windows

Adobe Creative Suite 3 Web Premium software is a complete solution for creating interactive websites, applications, user interfaces, presentations, mobile device content, and other digital experiences. Get everything you need to prototype your project, design assets, build web experiences, and efficiently maintain and update content.

- Dreamweaver CS3
- Flash CS3 Professional
- Photoshop CS3 Extended
- Illustrator CS3
- Fireworks CS3
- Acrobat 8 Professional
- Contribute CS3

Academic - Win (AEP0046) **$666**
Upgrade - Win (ALG1043) **$718**

Mac versions also available.



Adobe

$2385 SAVE $390 off RRP
WebCode: ALD0077

Adobe Creative Suite 3 Web Standard - Windows

- Dreamweaver CS3
- Flash CS3 Professional
- Fireworks CS3
- Contribute CS3

Student - Win (ADS0015) **$282**
Academic - Win (AEP0048) **$539**
Upgrade - Win (ALG1047) **$552**
Mac versions also available.

$1486 SAVE $249 off RRP
WebCode: ALD0079

Adobe Photoshop Extended CS3 - Windows

Adobe Photoshop CS3 Extended software delivers everything in Photoshop CS3 and more.

Student - Win (ADS0017) **$216**
Academic - Win (AEP0064) **$416**
Upgrade - Win (ALG1069) **$492**

Mac versions also available.

$1398 SAVE $337 off RRP
WebCode: ALD0095

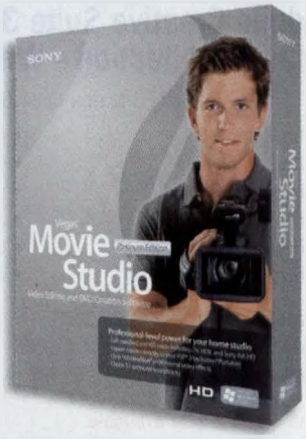
Software	WebCode	Price
Adobe Premiere Pro CS3 Full	ALD0065	$1,128
Adobe Premiere Pro CS3 Upgrade	ALG1023	$461
Apple iLife 08	APP0323	$92
Blaze DVD Copy 4	BLA0001	$64
Blaze Video Magic 2	BLA0005	$33
CyberLink DVD Suite 5 Pro	CYB0030	$131
CyberLink PowerDirector 6	CYB0032	$143
Pinnacle Studio 11	PIN0160	$128
Pinnacle Studio Plus 11	PIN0161	$172
Pinnacle Studio Plus 11 Upgrade	PIN0156	$110
Roxio Crunch for Windows & Macintosh	ROX5001	$86
Sony ACID Music Studio 7	SON0069	$138
Sony Sound Forge Audio Studio 9	SON0070	$141
Sony Super Duper Music Looper	SNY0030	$77

Sony Vegas Movie Studio Platinum Edition 8

With Sony Vegas Movie Studio Platinum Edition software you can import and edit video in nearly any format including high definition HDV and Sony AVCHD and integrated DVD authoring.

Key features

- 5.1 surround sound mixing and encoding
- Import and edit DV, HDV, and other video formats
- Gracenote MusicID CD album recognition
- ATRAC editing and encoding
- 24 new DVD themes
- Import and edit support for HD Sony AVCHD
- Show - Me - How tutorials
- Training DVD included



SONY

$207 SAVE $32 off RRP
WebCode: SON0071

Pinnacle Studio 11 Ultimate

Your life in movies. Mastered.

Pinnacle Studio Ultimate helps you harness the power of the latest in technology - HD, Windows Vista, Web Publishing and more. Additional fully-integrated pro audio and video tools give you complete control over the quality and style of your video for superior results.

Upgrade
(PIN0175) $132
Crossgrade
(PIN0177) $191

$255 SAVE $44 off RRP
WebCode: PIN0159

Adobe Creative Suite 3 Production Premium Windows

Adobe Creative Suite 3 Production Premium software, the successor to Adobe Production Studio, enables exceptional productivity as you create visually innovative work for film, broadcast, web, mobile phones, and other portable devices.

Includes:

- Adobe After Effects CS3 Professional
- Adobe Premiere Pro CS3
- Adobe Photoshop CS3 Extended
- Adobe Flash CS3 Professional
- Adobe Illustrator CS3
- Adobe Soundbooth CS3
- Adobe Encore CS3

Student - Win (ADS0013) $422
Academic - Win (AEP0044) $811
Upgrade - Win (ALG1039) $1160

Mac versions also available.

Adobe

$2488 SAVE $461 off RRP
WebCode: ALD0075

Ulead Video Studio 11.5 Plus

VideoStudio 11.5 Plus is video editing and DVD authoring software for anyone who wants to easily produce professional-looking videos, slideshows, and DVDs. Work quickly with intuitive wizards, or express your creativity with hands-on editing tools.

Bundled with Corel Paint Shop Pro (COR0103) $199

NEW

COREL

$173 SAVE $26 off RRP
WebCode: ULE0117

Ulead DVD MovieFactory 6 Plus

DVD MovieFactory 6 Plus - Easy to use disc authoring and burning software that lets you do more with your standard or High Definition digital media. Create HD or standard discs with studio quality personalized menus.

Academic
(ULE0116) $150
Upgrade
(ULE0107) $143

COREL

$168 SAVE $31 off RRP
WebCode: ULE0106

Adobe Photoshop Elements 6 & Premiere Elements 4

Easily combine photos and videos in entertaining ways

Adobe Photoshop Elements 6 & Adobe Premiere Elements 4 software combines two powerful yet easy-to-use products to deliver the most complete photo and video-editing solution.

- Get everything in the individual products and more
- Save time with centralized access to your photos and video clips
- Put photo slide shows in motion
- Do more with individual video frames
- Bring out the best in your photos

Academic (AEP9533) $132

BONUS Marie Claire Seasonal Kitchen Cook Book Valued at $59.95 Offer is via redemption and ends 31st December 2007.

*See csw.com.au/promotions for Terms & Conditions.

$198 SAVE $51 off RRP
WebCode: ALD9600

Imation CD-R 52x Inkjet Printable Media 10 Pack

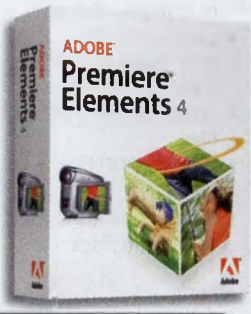
Imation CD-R discs store data swiftly and permanently with 1x to 52x write speeds. Our media offers you great performance with low failure rates. Store your images and photos, archive your data or create custom music mixes.

$8 SAVE $2 off RRP
WebCode: IMA0022

Adobe Premiere Elements 4.0

Create and share great-looking movies in minutes with Adobe Premiere Elements 4, the newest version of the best-selling consumer video-editing software! Get started quickly with all your video clips and photos at your fingertips and easy options for turning them into polished movies. Show your style with amazing audio and video effects.

Academic (AEP9534) $88



$137 SAVE $32 off RRP
WebCode: ALD9601

Roxio Easy Media Creator 10

Express yourself digitally and capture, organise, edit, enhance, protect, share and enjoy all your photos, video and music. This all-in-one media suite offers the latest in media innovation - copy audio, movies and TV shows from any iPod to your PC. Burn to HD DVD and Blu-ray and much more!

BONUS 1GB USB Dive

*While stocks last See www.csw.com.au/promotions

$142 SAVE $17off RRP
WebCode: ROX5002

Imation DVD-R 16x Inkjet Printable10 Pack

High capacity storage solution

Some things you create deserve to be preserved for all time, like a wedding video, or a great new software program. Choose Imation DVD-R to ensure your creative masterpieces won't be altered or erased. DVD-R, a write-once format, is capable of producing pre-mastering discs and is ideal for high volume data recording, archiving and playback.

$11 SAVE $3 off RRP
WebCode: IMA0035

Nero 8

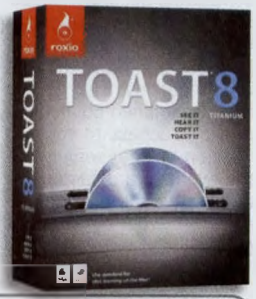
Nero 8, the newest version of the world's best-selling multimedia suite.

- Direct access to all features from the project launcher
- High Definition format support
- Xbox 360 and PlayStation 3 streaming features
- Blu-ray Disc and HD DVD burning support
- Copy a disc with just one click
- Graphics optimised for Windows Vista

$154 SAVE $45 off RRP
WebCode: NER0028

Roxio Toast 8 Titanium

Roxio Toast 8 sets the standard for burning CDs, DVDs, and now Blu-ray discs on the Mac. Create superior sounding audio CDs with crossfades. Enjoy your TV shows anywhere with exclusive EyeTV burning and TiVoToGo transfers to DVD or iPod. Copy your audio CDs, movies and DVDs. It's your digital life, Toast It!



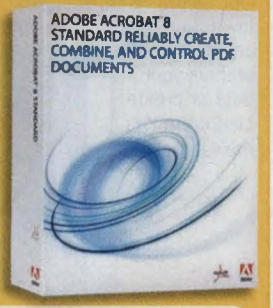
$158 SAVE $21 off RRP
WebCode: ROX5000

Adobe Acrobat 8 Standard

Adobe Acrobat 8 Standard software enables business professionals to reliably create, combine, and control Adobe PDF documents for easy, more secure distribution and collaboration.

Academic (AEP9525) $123

Upgrade (ALG9520) $138



Adobe

$413 SAVE $102 off RRP
WebCode: ALD9595

Adobe Acrobat 8 Professional

Communicate and collaborate with the essential PDF solution

Adobe Acrobat 8 Professional software enables business professionals to reliably create, combine, and control Adobe PDF documents for easy, more secure distribution, collaboration, and data collection.

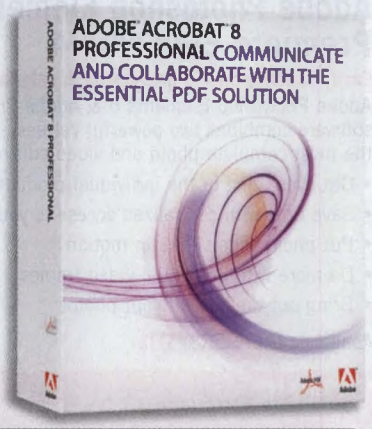
Create

Easily create Adobe PDF documents from Microsoft Office, Outlook, Internet Explorer, Project, Visio, Access, Publisher, AutoCAD, Lotus Notes, or any application that prints.

Combine

Combine documents, drawings, and rich media content into a single, polished Adobe PDF document. Optimize file size, and arrange files in any order regardless of file type, dimensions, or orientation.

Academic - Win (AEP9523) $205
Upgrade - Win (ALG9517) $211
Mac versions also available.



Adobe

$589 SAVE $186 off RRP
WebCode: ALD9592

Adobe Licensing Programs

Purchasing under Adobe's licensing programs is your best option when you require multiple copies of Adobe Software.

Key Benefits are:

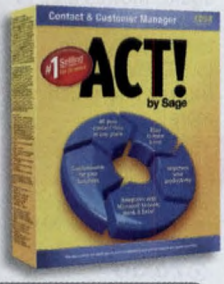
- Lower software costs.
- Reduced ordering and license administration, simplifying total software management efforts and streamlining internal business processes.
- Web-based license management tool.
- With Upgrade Plan option, technology consis tency across the user base and deployment of the most current technology.
- Greater ability to manage legal compliance

ACT! by Sage 2008 v10

Celebrate the 20th Anniversary of the world's best selling contact and customer manager with the release of ACT! by Sage 2008. ACT! helps business professionals connect and succeed.

- New interactive dashboard
- Compatibility with Office 2007 and Vista
- Direct integration with Outlook e-mail

Upgrade (TCA0114) $148
Academic (TCA0115) $178



ACT!

$242 SAVE $37 off RRP
WebCode: TCA0113

Nitro PDF Express V1

- Create PDFs from 300+ file types.
- Convert PDFs to Microsoft Word.
- Combine multiple files in different formats to a single PDF.
- Extract, shuffle and split pages from PDF files.
- Create secure PDF files.
- Process PDF files in batch.
- Easy-to-use task-based wizard interface.

$84 SAVE $15 off RRP
WebCode: NIT0003

Symantec pcAnywhere 12.1 Host and Remote

Symantec pcAnywhere 12.1 helps small and mid-sized businesses access and manage remote computers securely across multiple platforms (including Windows Vista, Linux, and Mac OS X) in order to resolve issues quickly. Easy to use and streamlined connectivity provides access to your mission-critical servers in the event of a disaster, ensuring comprehensive control of your servers and endpoint devices.

symantec.

$287 SAVE $42 off RRP
WebCode: SYM9749

Broderbund Mavis Beacon Teaches Typing 17 Deluxe

Save time, work faster and be more productive at work, school or home with the trusted, award-winning expertise of Mavis Beacon!

Let the #1 name in typing for 12 straight years guide your typing tutorials! Mavis Beacon will monitor your progress, flag your weak spots and offer challenging lessons to help you continue improving your keyboarding skills.

$66 SAVE $9 off RRP
WebCode: BRD0029

Nuance PDF Converter Professional 4

PDF Converter Professional 4 is the complete PDF solution for business users, offering an unmatched combination of creation, editing and conversion features. Renowned security and markup capabilities make PDF document collaboration and control easier than ever before. Edit PDF documents directly just like working in the original file. Use FormTyper to instantly convert static PDF forms into fill-able PDF forms. Advanced PDF/A technology guarantees documents will always display and print reliably while cutting-edge compression techniques reduce file sizes significantly. What's more, integration of Nuance's award-winning RealSpeak text-to-speech technology allows any PDF to even be read aloud!

Best of all, PDF Converter Professional is less than a third the price of the alternatives - so you can see what we mean by "Better PDF for Business."

Academic (NUAO027) $144

*BONUS $25 Village Cinemas Gift Card

*Offer valid to the first 66 purchases.
For full Terms & Conditions see csw.com.au/promotions

$165 SAVE $30 off RRP
WebCode: NUA0025

Nuance Dragon NaturallySpeaking 9 Preferred Mobile with Phillips Recorder for Windows

NUANCE

Dragon Naturally Speaking Preferred Mobile 9 gives small business users and PC enthusiasts the power to create documents, reports, e-mails and more.

*BONUS $75 Cashback

*Redemption offer is available from 1 October 2007 to 31 January 2008. see csw.com.au/promotions

You Pay $569
$494 After $75 Cashback
SAVE $205 off RRP
WebCode: NUA0016

Nuance OmniPage Professional 16

OmniPage Professional 16 allows business professionals to achieve new levels of productivity by eliminating the manual reproduction of documents. Precision OCR analysis, layout detection, Logical Form Recognition (LFR) technology, and advanced security features quickly turn office documents and forms into over 30 different PC applications for editing.

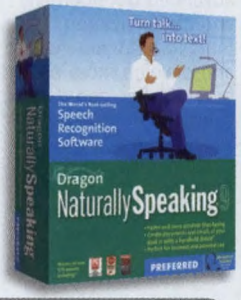
Upgrade (NUAO047) $328

NUANCE

$797 SAVE $202 off RRP
WebCode: NUA0046

Nuance Dragon NaturallySpeaking 9 Preferred

Dragon NaturallySpeaking Preferred 9 gives small business users and PC enthusiasts the power to create documents, reports, e-mails and more—all by speaking!



Academic
(NUAO018) $275

NUANCE

$321 SAVE $78 off RRP
WebCode: NUA0017

Nuance Dragon NaturallySpeaking Preferred Wireless for Windows

NUANCE

Dragon Naturally Speaking Preferred Wireless gives you the ability to dictate into a handheld device when you're away from your PC, or use a Bluetooth microphone! Wireless headset included.

*BONUS $75 Cashback

*Redemption offer is available from 1 October 2007 to 31 January 2008. see csw.com.au/promotions

You Pay $566
$491 After $75 Cashback
SAVE $208 off RRP
WebCode: NUA0055

Nuance OmniPage 16

OmniPage 16 saves time and money by eliminating retyping. Instantly turn paper, digital camera photos, PDF and XPS files into editable electronic documents that look just like the original – complete with text, tables and graphics. OmniPage uses 99% + character accuracy to precisely format your documents so you can easily ake changes.

Academic
(NUAO051) $154

NUANCE

$165 SAVE $34 off RRP
WebCode: NUA0048

Nuance Dragon NaturallySpeaking 9 Standard

NUANCE

Dragon NaturallySpeaking Standard 9 is an easy-to-use product that gives you everything you need to get started, including a free high-quality headset microphone with noise canceling technology.

Academic
(NUAO021) $95

*BONUS $30 Darrell Lea Gift Voucher!

*For terms and conditions see csw.com.au/promotions

$165 SAVE $34 off RRP
WebCode: NUA0019

NUANCE

Buy 10 licenses of any of the below listed Nuance Products and get 5 Free!!

- Dragon Naturally Speaking 9 – Preferred and Professional editions
- PaperPort 11 – Professional edition
- PDF Converter 4 – Standard and Professional editions
- PDF Create! 4
- OmniPage 16 – Standard and Professional editions
- TextBridge 11 – Professional edition

* Bonus offer valid on Government, Academic and Upgrade SKU's and finishes on the 31st December 2007

FileMaker.

Introducing FileMaker Corporate Licensing Program

FileMaker licensing options give you a choice of licensing and maintenance options designed around the way you work. Our goal is to provide you with the easiest software licensing options ever - no points, no complex contracts, just simple options that let you get the software you need at a price you can afford. For corporate or government organizations CSW-IT specialises in offering the Annual Volume License Agreement (AVLA).

Annual Volume License Agreement (AVLA)

Who should purchase this type of license?

Corporate or government organisations that need at least 10 licenses of FileMaker software. This option provides an easy, flexible way to save time and money on volume licensing.

How does it work?

By purchasing an AVLA you are purchasing an annual right to use the software. At the end of the year, you can choose to renew for the next year, purchase the software or de-install the software. If the option is to purchase then a discount is available for each year the software has been installed.

Benefits

- Purchases can start with a low 10-seat minimum.
- Mix and match platforms, products (including FileMaker Pro, FileMaker Pro Advanced, FileMaker Server, FileMaker Server Advanced, and FileMaker Mobile) and upgrades for larger tier discounts.
- No minimums for adding seats to an existing AVLA.
- Volume licensing savings begin at 13% off single user packages; greater discounts for larger orders.
- The AVLA includes 12 months maintenance.

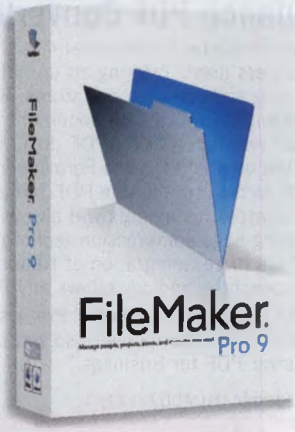
CSW-IT
csw-it.com.au
1300 761 761

FileMaker Pro 9

Finally, an easy-to-use database software for Small Businesses!

Why do so many small businesses choose FileMaker? FileMaker has been helping small businesses dream BIG for more than 20 years. FileMaker gives them the tools they need to easily manage people, projects, assets, and more! It's the #1-selling easy-to-use database. And for good reason, it works as hard as they do!
Compatible for both Windows and Mac operating systems.

Upgrade (FIL2001) **$288**
Academic (FIL2002) **$294**
Upgrade 5-pack (FIL2004) **$1134**
Academic 5-pack (FIL2005) **$1182**
5-pack (FIL2003) **$1914**



FileMaker.

$477 SAVE $22 off RRP
WebCode: FIL2000

FileMaker Pro 9 Advanced Upgrade

FileMaker Pro 9 Advanced includes all the features of FileMaker Pro 9 plus a suite of advanced development and customization tools to help you design and develop more powerful, more customized database solutions – faster and easier than ever before!

Academic (FIL2008) **$487**
Full (FIL2006) **$756**

FileMaker.

$473 SAVE $22 off RRP
WebCode: FIL2007

FileMaker Server 9 Upgrade

Simply install FileMaker Server software on a dedicated computer and upload your FileMaker Pro databases to the server. You and your team will instantly realize how fast and easy it is to access your databases 24/7.

Academic (FIL2011) **$977**
Full (FIL2009) **$1578**

FileMaker.

$939 SAVE $51 off RRP
WebCode: FIL2010

Microsoft Office Project Standard 2007 Academic

Microsoft Office Project Standard 2007 gives you robust project management tools with the right blend of usability, power, and flexibility, so you can manage projects more efficiently and effectively.

Upgrade (MSA6143) **$536**
Full Version (MSA6142) **$913**

Microsoft

$99 SAVE $14 off RRP
WebCode: MSA6141

Microsoft Office Visio Professional 2007 Academic

Office Visio Professional 2007 is helping IT and business professionals world-wide visualise, analyse, and communicate complex information, systems and processes.

Upgrade (MSA6150) **$537**
Full Version (MSA6149) **$853**

Microsoft

$245 SAVE $30 off RRP
WebCode: MSA6148

Microsoft Visual Studio 2008 Professional Edition with MSDN Premium

Developers using Visual Studio 2008 Professional Edition can target the Microsoft Office system, Windows Mobile devices, and SQL Server. Visual Studio Tools for Office is now a fully integrated part of Visual Studio 2008 Professional Edition.

Key Benefits:

- Visual Studio 2008 Professional
- Office 2007 Ultimate
- Previous versions of Visual Studio.
- Expression Web
- Expression Blend
- Visual Studio Tools for Office
- Visual SourceSafe
- SQL Server
- Application Platform Servers
- Business Productivity Servers

NEW

AVAILABLE FROM MID DECEMBER
CALL US ON 1300 658 600
FOR COMPETITIVE PRICING

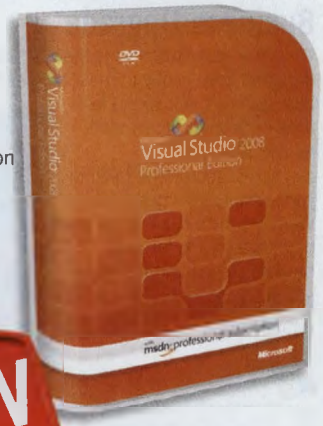
Microsoft

Microsoft Visual Studio 2008 Professional with MSDN Professional

MSDN Subscriptions are the ultimate resource for professional Developers, teams, and organizations engaged in application development. Comprehensive access to Microsoft tools and technologies enable teams to confidently design, develop and test software solutions; professional support services and expert information resources ensure Developers can rise to the biggest challenges.

Key Benefits:

- Visual Studio 2008 Professional
- Previous versions of Visual Studio
- Visual Studio Tools for Office
- Visual SourceSafe
- Operating Systems
- MSDN Library



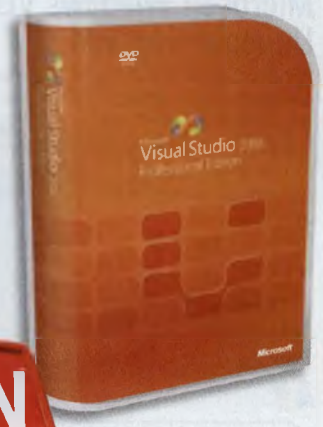
NEW

AVAILABLE FROM MID DECEMBER
CALL US ON 1300 658 600
FOR COMPETITIVE PRICING

Microsoft

Microsoft Visual Studio 2008 Professional Edition

- Both Microsoft Expression Web (ASP.NET) and Microsoft Expression Blend (Windows Presentation Foundation) are supported
- Powerful unit testing tools are now integrated directly into Visual Studio 2008 Professional Edition
- Now you can use one tool – Visual Studio 2008 and build applications that work with .NET Framework versions 2.0, 3.0 and 3.5
- Visual Studio 2008 Professional now includes Tools for Office development



NEW

AVAILABLE FROM MID DECEMBER
CALL US ON 1300 658 600
FOR COMPETITIVE PRICING

Microsoft

Microsoft Expression Studio

Microsoft Expression Studio, a suite of tools for creative designers that gives you the freedom to bring your vision to reality and boosts developer collaboration in the delivery of rich user experiences for the Web, Windows Vista applications and beyond. Compatibale with Windows and Mac.

Key Benefits:

- Expression Web
- Expression Blend
- Expression Design
- Expression Media

Academic (MSS0081) **$154**
Upgrade (MSS0083) **$543**

Microsoft

$934 SAVE $106 off RRP
WebCode: MSA0082

Microsoft Expression Web

Build dynamic, interactive pages that harness the power of the Web to deliver superior quality. Built-in support for today's modern Web standards makes it easy to optimize your sites for accessibility and cross-browser compatibility.

Key Benefits:

- Standards-based Web Sites
- CSS Based Layout

Academic (MSA9880) **$91**
Upgrade (MSA9882) **$159**

Microsoft

$467 SAVE $56 off RRP
WebCode: MSA9881

Microsoft CERTIFIED Partner

Microsoft Volume Licensing

Microsoft Volume Licensing for Small/Medium business (5-250 PCs)

Microsoft Open License is a simple and flexible software volume licensing program designed for customers who order as few as five licenses. Open License benefits include:

- Significant discounts over full retail prices.
- Ability to obtain licenses through multiple locations from a worldwide reseller channel.
- Easier management of license portfolios with eOpen (electronic license management)

Choose the Open License Program that's right for you

The Microsoft Open License program offers you three great ways to save on Microsoft products:

Microsoft Open Business

Open Business is for companies looking to save money without a large up-front volume commitment. The initial order is five or more licenses for any combination of Microsoft products. You can place reorders for two full years and enjoy discounts (as compared to estimated retail prices for Full Packaged Product). There is no minimum reorder quantity.

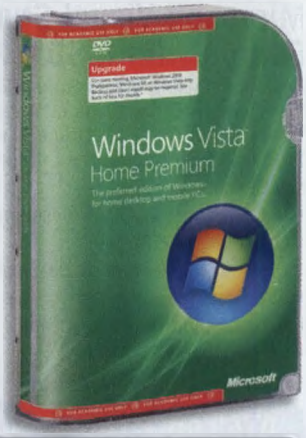
Microsoft Open Volume

Open Volume is for companies looking to take advantage of volume discounts greater than those offered under Open Business who are in a position to place a minimum initial order of 500 points within a product pool - Applications, Systems, or Servers. Each license carries a unit value of at least one point; some licenses count for higher unit values. And, just as with Open Business, you qualify for the same discount as your initial order when you place additional orders as small as one license throughout the two-year term of your License Agreement.

Microsoft Open Value

Microsoft Open Value is a premium volume licensing offer available under the Open License family. Designed for organisations with as few as five computers, Open Value offers simpler license tracking, greater control over the software upgrade cycle, and better software cost management. Open Value also offers the advantages of Software Assurance (SA), which includes new version upgrades, technical training, user training, partner services, and product support. These benefits are available through the term of the agreement to improve software resource planning, ROI measurement, and IT professional and user productivity.

Microsoft Windows Vista Home Premium Academic Upgrade



Windows Vista Home Premium is the operating system for homes with advanced computer needs. It will help you use your laptop or desktop PC more effectively as well as enable you to enjoy new, exciting digital entertainment experiences all with the benefit of added security and reliability.

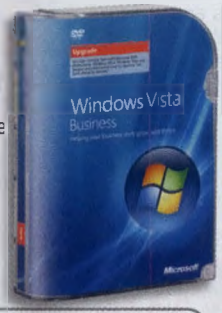
New user interface

Windows Vista Home Premium has a new user interface named Windows Aero, which is both efficient and beautiful. This new interface makes it easier than ever before to find your way around the operating system. It even makes it easier to accomplish multiple tasks at once by providing a three-dimensional, real-time, animated view of all of your open applications and documents. Additionally, Windows Vista Home Premium helps you quickly find and organize large collections of documents, pictures, movies, videos, and music.

Upgrade (MSA5104) **$269**
Full Version (MSA5103) **$405**

$161 SAVE $18 off RRP
WebCode: MSA5105

Microsoft Windows Vista Business Upgrade



Windows Vista Business is the first edition of Windows designed specifically to meet the needs of small businesses. You'll spend less time on technology support–related issues so you can spend more time making your business successful. Windows Vista Business is the definitive choice for your business today and tomorrow.

Full Version
(MSA5106) **$515**

$339 SAVE $40 off RRP
WebCode: MSA5107

Apple Mac OS X Leopard

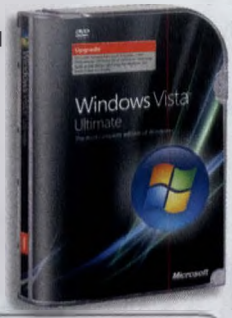
Add a new Mac to your Mac. Mac OS X v10.5 Leopard is packed with over 300 new features, installs easily, and works with the software and accessories you already have.
Choose a single-user license for home or office. Or if you have more than one Mac at home, choose the five-user Family Pack.

Family Pack
(APP0349) **$236**

Authorised Reseller

$148 SAVE $10 off RRP
WebCode: APP0350

Microsoft Windows Vista Ultimate Upgrade



Windows Vista Ultimate is the most comprehensive edition of Windows Vista. It is the first operating system that combines all of the advanced infrastructure features of a business – focused operating system.

Full Version
(MSA5108) **$673**

$444 SAVE $51 off RRP
WebCode: MSA5109

Parallels Desktop 3.0 for Mac

The killer app for Mac is now even better than ever!

Parallels Desktop for Mac enables you to run Windows, Linux, and more side-by-side with Mac OS X on any Intel-powered Mac, without rebooting. With Parallels' award-winning virtualization technology, you can run Mac OS X and your favorite Windows applications at the same time. You can even drag-and-drop files between desktops!

parallels

$97 SAVE $17 off RRP
WebCode: PAR0003

Operating Systems & Office Suites

Microsoft Office Professional 2007 Upgrade

Work more efficiently and effectively

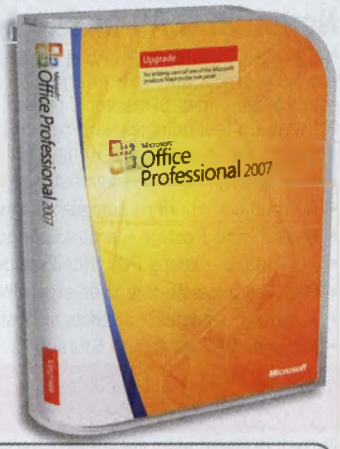
New tools help you work faster and create more professional documents, spreadsheets, and presentations. Office Professional 2007 helps you quickly accomplish routine tasks so you can spend more time with your customers. New task-based menus and toolbars automatically display the commands and options you can use, making it faster and easier to find the software features you need and the Live Preview feature makes it easy to sample your changes before you apply them.

Applications included:

- Word 2007
- Excel 2007
- PowerPoint 2007
- Publisher 2007
- Access 2007
- Outlook 2007 with Business Contact Manager

Academic* (MSA6107) **$250**
Full Version (MSA6108) **$758**

*Valid also for home/non-comercial use



$492 SAVE $57 off RRP WebCode: MSA6109

Software	WebCode	Price
MS Access 2007	MSA6116	$352
MS Excel 2007	MSA6126	$352
MS Office Small Business 2007	MSA6105	$691
MS Office Small Business 2007 Upg	MSA6106	$437
MS Office Ultimate 2007	MSA6111	$998
MS Office Ultimate 2007 Upgrade	MSA6112	$828
MS Onenote 2007	MSA6119	$142
MS Outlook 2007	MSA6122	$165
MS Powerpoint 2007	MSA6130	$352
MS Student with Encarta Prem 2008	MSC2941	$80
MS Windows Vista Home Basic	MSA5102	$342
MS Windows Vista Home Basic Upg	MSA5101	$179
MS Word 2007	MSA6145	$352
MS Works 9	MSC2940	$66

Microsoft Office Home and Student 2007*

Applications included:

- Word 2007
- Excel 2007
- PowerPoint 2007
- OneNote 2007

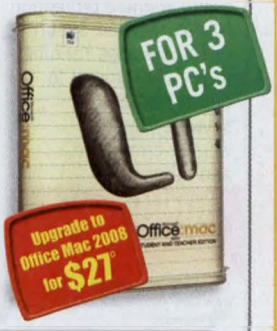
*for non-commercial use only

$196 SAVE $33 off RRP WebCode: MSA6101

Microsoft Office 2004 for Mac Student and Teacher Edition*

There's time for fun and time to focus. When you're ready to get down to business, Microsoft Office 2004 for Mac provides the intuitive, intelligent tools you need to transform your ideas and opportunities into action.

°See csw.com.au/promotions for Terms & Conditions.
*for non-commercial use only

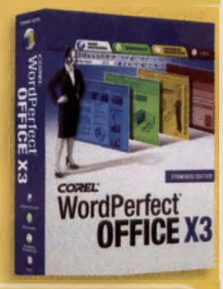


$199 SAVE $30 off RRP WebCode: MSA3749

Corel WordPerfect Office X3 – Standard Upgrade

Corel WordPerfect Office X3 - Standard Edition is your one-stop office suite. Ideal for large organizations and governments as well as business and consumer users with the need for dependable word processing, spreadsheet, presentation and email solutions.

Full Version
(COR8323) **$449**
Student & Teacher
(COR8328) **$132**



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Applications included:

- Word 2007
- Excel 2007
- PowerPoint 2007
- Outlook

Full Version
(MSA6103) **$619**

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Microsoft Office 2004 for Mac Standard Edition

Move up to Microsoft Office 2004 for Mac Standard Edition and let your ideas take flight. Its groundbreaking new features, created with input from thousands of Mac users, are designed to help you manage, create and share ideas with ease and confidence.

Upgrade
(MSA3748) **$342**

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Apple iWork 08 for Mac

Apple's amazing productivity suite for the Mac, iWork '08 includes three applications: Pages '08 for word processing with an incredible sense of style; Numbers '08 for powerful, compelling spreadsheets made easy; and Keynote '08 for cinema-quality presentations for everyone.

Family Pack 5 User
(APP0326) **$121**

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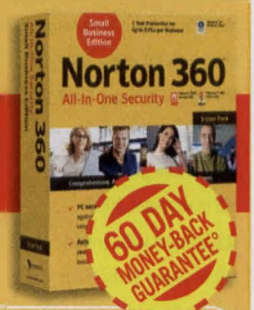
Norton 360 All-In-One Security 10 User

Norton 360 provides all-in-one protection that keeps you, your family, your PC, and your information secure.

5 User (SYM9745) $164



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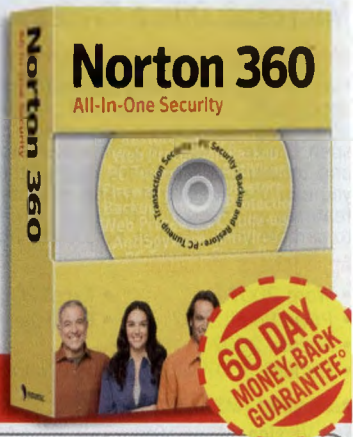
Norton 360 All-In-One Security 3 User

Norton 360 provides all-in-one protection that keeps you, your family, your PC, and your information secure. This comprehensive solution combines Symantec's proven, industry-leading security and PC tune-up technologies with new automated backup and antiphishing features, providing a full circle of protection.

- PC Security – defends against a broad range of threats
- Transaction Security – safeguards against online identity theft
- Backup and Restore – protects important files from loss
- PC Tuneup – keeps PCs tuned for peak performance
- Provides a hassle-free user experience
- Automatic Updates – protects against the latest online threats
- Includes 2GB of Online Storage



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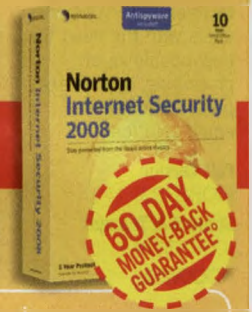
Norton Internet Security 2008 10 User

Norton Internet Security is always running in the background to detect and block spyware, viruses, worms, crimeware and other risks.

5 User (SYM9770) $124



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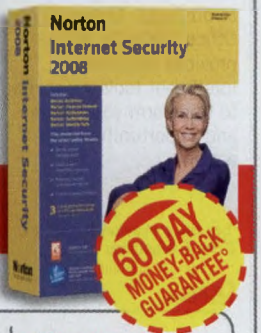
$209 SAVE $40 off RRP
WebCode: SYM9771

Norton Internet Security 2008 3 User

From the moment you install it, you're getting award winning protection. Norton Internet Security 2008 is always running in the background to detect and block spyware, viruses, worms, crimeware, and other risks



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WebCode: SYM9769

Trend Micro Internet Security Pro 2008 3 User

Complete protection home and away

- Includes Firewall, Antivirus & Spyware detection and removal
- New System Restore
- 3 User License
- FREE 24/7 Phone Support
- Home network and wireless protection

5 User (TRM0019) $158

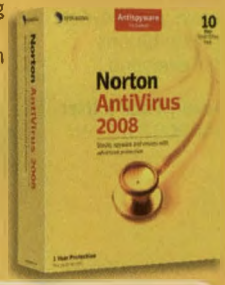
TREND MICRO

$104 SAVE $25 off RRP
WebCode: TRM0017

Norton AntiVirus 2008 10 User

Norton Antivirus 2008 helps block viruses and spyware with advanced protection. Norton AntiVirus 2008 helps protect your entire computer by preventing viruses, spyware and other security risks from harming your system.

5 User (SYM9767) $111



Less then $23 per PC

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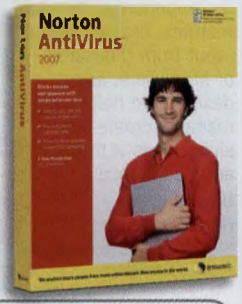
$165 SAVE $44 off RRP
WebCode: SYM9768

Norton AntiVirus 2008 3 User

Norton Antivirus 2008 helps block viruses and spyware with advanced protection. Norton AntiVirus 2008 helps protect your entire computer by preventing viruses, spyware and other security risks from harming your system.

1 User (SYM9760) $44



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$77 SAVE $12 off RRP
WebCode: SYM9766

Trend Micro Internet Security 2008 3 User

Trend Micro Internet Security 2008 makes it easy to protect your home network, personal identity, and online activities against viruses, spyware, identity theft and other present and future web threats. Confidently email, shop, bank, or share photos online, knowing your privacy and files are well protected.

TREND MICRO

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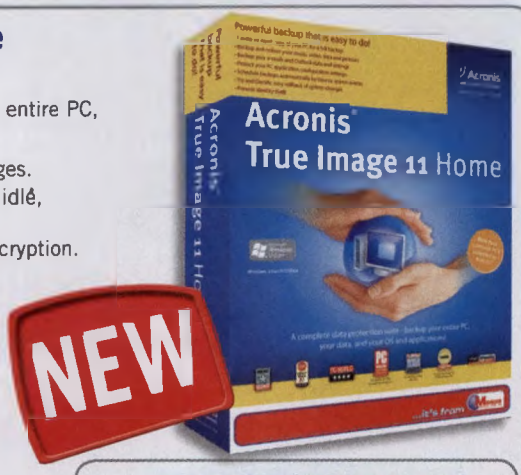
Acronis True Image 11 Home

Powerful backup that is easy to do!

A complete data protection suite – backup your entire PC, your data, and your OS and applications.

- Try and Decide: easy rollback of system changes.
- Smart Scheduling: start backup when user is idle, login/logout and other events.
- Protect your archives with password-based encryption.
- Search for files to restore in all your backups.
- Protect your privacy with new security tools.
- Supports 64-bit CPU and Windows Vista.



Acronis
Compute with confidence

$68 SAVE $11 off RRP
WebCode: MAN0102

Microsoft Windows Live OneCare 1.5 3 User

Help get peace of mind knowing that everything is managed for your virus and spyware scanning, firewalls, tune-ups, file backups, the whole nine yards. And it's all delivered to you in a smooth, hassle free package.

$73 SAVE $27 off RRP
WebCode: MSA6100

BullGuard Internet Security 7.0 1 GB Free Backup

BullGuard Internet Security is a complete security solution which protects PCs and laptops from online threats like hackers, spam, viruses and spyware.

- Complete, all-in-one security
- Online backup feature included
- 24/7 access to BullGuard Support
- 3 PC license

*FREE upgrade to 5GB online backup
*See www.csw.com.au/promotions

$82 SAVE $16 off RRP
WebCode: BUL0001

CA Internet Security Suite Plus 2008

Comprehensive Internet Security and Data Protection

- Key Features
- Anti-Virus
- Anti-Spyware
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- Anti-Phishing
- Parental Controls
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$9.95 After $60 Cashback
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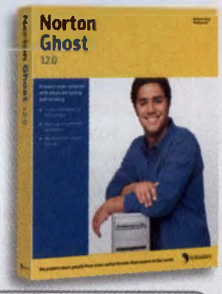
WebCode: CHY2057

Norton Ghost 12.0

Symantec's Norton Ghost 12.0 protects your computer with advanced backup and recovery. It includes the backup protection you expect, with powerful new features such as enhanced performance, vailable one-to-one remote management, LightsOut Restore capability, and more.



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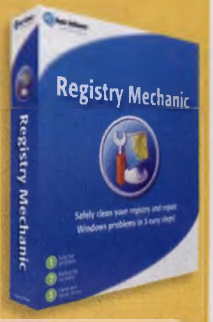
$88 SAVE $11 off RRP
WebCode: SYM9908

Software	WebCode	Price
Acronis Disk Director Suite 10	ACR1001	$96
Bullguard Backup	BUL0003	$55
CA Antivirus Plus Antispyware 2008 3 User	CHY2056	$38
CA Internet Security 3 User + 2GB Flash Drive	CAI0002	$77
McAfee Internet Security 2008 3-User	MCF2146	$80
McAfee Total Protection 2008 3-User	MCF2184	$101
Net Nanny 5 Special Edition	NAN0001	$43
Norton Partion Magic	SYM2560	$95
Norton Save & Restore	SYM9901	$58
Norton Systemworks Premier	SYM9723	$83
PC Tools Privacy Guardian 4.1	PCT0003	$46
PC Tools Spyware Doctor 2007	PCT0001	$46
Trend Micro Mobile Security 2008	TRM0013	$44
Zone Alarm Internet Security 2007 3 User	MAN0092	$79

PC Tools Registry Mechanic 2007

Repair and optimise your registry in a few simple mouse clicks!

- Improve system stability and longevity
- Repair common causes of crashes and errors
- Maximize PC efficiency and performance



PC Tools Software

$42 SAVE $8 off RRP
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Microsoft LifeCam VX-3000

With Microsoft LifeCam VX-3000 and Windows Live Messenger and you can take instant messaging with friends and family to a new level of sight and sound.

- High Definition photos - Capture high-quality, still photos at 1.3 megapixel resolution.
- Built-in microphone - The built-in microphone automatically picks up your voice with remarkable clarity.

You Pay $79 **$54** After $25 Cashback

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WebCode: MST8426

Microsoft Natural Ergonomic Desktop 7000

- Maintains hand in relaxed position.
- Pressure zone stays clear of carpal tunnel. Natural Ergonomic Keyboard
- 14-Degree Gable Advanced ergonomic design with enhanced slope reduces wrist pronation.
- 12-Degree Split The split keyboard design encourages natural wrist posture.

You Pay $158 **$108** After $50 Cashback

SAVE $91 off RRP

WebCode: MST8473

Microsoft Bluetooth Notebook Mouse 5000

- Transceiver-free and confident wireless connection to your Bluetooth PC.
- More responsive, more precise, and smoother tracking
- Battery light indicates when your battery is running low and an on/off switch helps you conserve power.
- 4 Buttons

You Pay $59 **$42** After $17 Cashback

SAVE $27 off RRP

WebCode: MST8245

Microsoft LifeCam NX-3000

- VGA video resolution (640 x 480 pixels)1
- High Definition 1.3-megapixel still photos (1280 x 960 pixels, interpolated)2
- Automatic face tracking Hear more
- Built-in microphone with acoustic noise cancellation
- Automatic audio control for enhanced sound clarity

You Pay $72 **$47** After $25 Cashback

SAVE $52 off RRP

WebCode: MST8476

Microsoft Wireless Optical Desktop 700

Get the reliability you expect from Microsoft hardware at an extraordinary value — with the Microsoft Wireless Optical Desktop 700. This keyboard and optical mouse combine the freedom of wireless with the control of an optical mouse with scroll wheel. Plus, it's easy to use — just plug in the receiver and start typing.

You Pay $48 **$33** After $15 Cashback

SAVE $26 off RRP

WebCode: MST8249

Microsoft Wireless Optical Mouse 2000

- Scroll Wheel to move through your documents quickly
- Get a grip with a comfortable design created for either hand
- Extended Battery Life
- Easy to Set Up and Use - Just plug in the receiver to get started

You Pay $38 **$26** After $12 Cashback

SAVE $23 off RRP

WebCode: MST8423

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* Liteon LH-20A1P 20X DVD-RW
* Floppy Drive, Gigabit Lan
* USB in Front ATX Tower Case

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* 256MB Gigabyte 2400Pro PCIE
* Liteon LH-20A1P 20X DVD-RW
* Floppy Drive, Gigabit Lan
* Foxconn TSAA-861 Tower Case

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CPL Box Only Code4

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* Asus P5KPL Motherboard
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* 250GB WD SATAII Hard Drive
* 256MB Asus 7300GS TD PCIE
* Liteon LH-20A1H 20X DVD-RW
* Floppy Drive, Gigabit Lan
* Asus TA881 Quiet Case

$584

CPL Box Only Code5

* Intel Core2 Duo E6550 2.3G CPU
* Gigabyte P35-DS3 Motherboard
* 1GB PC5300 Kingston DDR2 RAM
* 320GB Seagate SATAII Hard Drive
* 256MB Asus 2400Pro TD PCIE
* Pioneer 212D SATA DVD-RW
* Floppy Drive, Gigabit Lan
* Coolermaster Elite330 Case

$698

CPL Box Only Code6

* AMD AM2 Dual Core 4000 CPU
* Asus M2N-X Motherboard
* 512MB PC4200 Corsair DDR2 RAM
* 80GB WD SATAII Hard Drive
* 256MB Asus 7200GS TD PCIE
* Liteon LH-20A1P 20X DVD-RW
* Floppy Drive, 10/100 Lan
* USB in Front ATX Tower Case

$414

CPL Box Only Code7

* AMD AM2 Dual Core 4400 CPU
* Gigabyte M56S-S3 Motherboard
* 1GB PC5300 Corsair DDR2 RAM
* 160GB Seagate SATAII Hard Drive
* 256MB Gigabyte 2400Pro PCIE
* Liteon LH-20A1P 20X DVD-RW
* Floppy Drive, Gigabit Lan
* Asus TA881 ATX Tower Case

$506

CPL Box Only Code8

* AMD AM2 Dual Core 6000 CPU
* Asus M2N-E-Sli Motherboard
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* 256MB Asus 8500GT TD PCIE
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* Floppy Drive, Gigabit Lan
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* Intel Dual Core E2140 1.6G CPU
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* Gigabyte KB & Optical Mouse
* Logitech R10 Speaker

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CPL Value Budget PC

* AMD AM2 Dual Core 4000 CPU
* Asus M2N-MX-SE Motherboard
* 512MB PC4200 Corsair DDR2 RAM
* 80GB WD SATA Hard Drive
* Liteon LH-20A1P 20X DVD-RW
* 10/100 Lan, 6 Channel Audio
* USB in Front ATX Tower Case
* 17" Samsung 740N LCD Monitor
* Gigabyte KB & Optical Mouse
* Logitech R10 Speaker

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CPL Business Solution

* Intel Core2 Duo E4500 2.2G CPU
* Gigabyte P31-DS3L Motherboard
* 1GB PC5300 Kingston DDR2 RAM
* 160GB Seagate SATAII Hard Drive
* 256MB Gigabyte 2400Pro TD PCIE
* LG H62NBBK SATA DVD-RW
* 19" Acer AL1916WD LCD Monitor
* Microsoft Business KB & Mouse
* Asus TA881 Quiet Case

$834

CPL Business Solution

* AMD AM2 Dual Core 4400 CPU
* Asus M2N-X Motherboard
* 1GB PC5300 Corsair DDR2 RAM
* 160GB WD SATAII Hard Drive
* 256MB Asus 7300GS TD PCIE
* Liteon LH-20A1H 20X DVD-RW
* 19" Acer AL1916WD LCD Monitor
* Microsoft Business KB & Mouse
* Asus TA881 Quiet Case

$758

CPL Entertainment PC

* Intel Dual Core E6550 2.3G CPU
* Gigabyte P35-DS3 Motherboard
* 2GB PC5300 Kingston DDR2 RAM
* 250GB Seagate SATAII Hard Drive
* 256MB Gigabyte 8500GT TD PCIE
* Pioneer 212D SATA 18X DVD-RW
* 19" LG 1919S-SF LCD Monitor
* Microsoft Multimedia KB & Mouse
* Logitech X240 Speaker
* Coolermaster Elite330 Case

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CPL Entertainment PC

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* Asus M2N-E SLI Motherboard
* 2GB PC5300 Kingston DDR2 RAM
* 250GB WD SATAII Hard Drive
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* Pioneer 212D SATA 18X DVD-RW
* 19" LG 1919S-SF LCD Monitor
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* Logitech X240 Speaker
* Coolermaster Elite331 Case

$995

CPL Xtreme Gaming PC

* Intel Dual Core E6750 2.6G CPU
* Gigabyte P35-DS3P Motherboard
* 2GB PC5300 Kingston DDR2 RAM
* 320GB Seagate SATAII Hard Drive
* 256MB Gigabyte 8500GT PCIE
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* 19" Samsung 940N LCD Monitor
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CPL Xtreme Gaming PC

* AMD AM2 Dual Core 6000 CPU
* Gigabyte M57SLI-S4 Motherboard
* 2GB PC5300 Corsair DDR2 RAM
* 320GB WD SATAII Hard Drive
* 256MB Gigabyte 8500GT PCIE
* Pioneer 212D SATA 18X DVD-RW
* 19" Samsung 940N LCD Monitor
* Logitech Media600 KB&Mouse
* Logitech X540 5.1 Speaker
* Coolermaster Centurion V

$1184

CPL Core2 Special PC

* Intel Core2 Duo E6550 2.3G CPU
* Asus P5LD2-X/1333 Motherboard
* 2GB Kingston PC5300 DDR2 RAM
* 250GB Seagate SATAII 16MB Hard Drive
* 512MB Asus 8500GT TD PE
* Asus 1814BLT SATA DVD-RW
* 19" Viewsonic VA1912WB Wide LCD
* Microsoft Business Hardware KB & Mouse
* Asus TA982 USB Front Case

$1014

CPL Core2 Extreme PC

* Intel Core2 Quad Q6600 2.4G CPU
* Gigabyte P35-DS3R Motherboard
* 2GB Kingston PC6400 DDR2 RAM
* 320GB Seagate SATAII 16MB Hard Drive
* 256MB Gigabyte 8500GT PCIE
* Pioneer 212D SATA DVD-RW
* 19" Viewsonic VX1932WM LCD
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CPL Server Workstation1

* Intel Xeon 5310 1.6G CPU
* Intel S5000VSASATAR Motherboard
* 1GB Kingston DDR2 ECC Buffered RAM
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* Dual Intel Gigabit Lan, SATA Controller
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* Intel SC5299DP Server Case
* 19" Acer AL1916WD LCD Monitor
* Microsoft Business Hardware KB & Mouse

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CPL Server Workstation2

* Intel Xeon 5320 1.8G CPU
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$1569

ASUS F3SC-AS330P
C2D T7250 2G, 2GB, 120GB SATA, 15" WXGA 128MB 8400, DVD-RW, BT, Camera, Windows XP Pro
$1629

ASUS F3SV-AK136G
C2D T7500 2.2G, 2GB, 200GB SATA, 15.4" WSXGA, 256MB 8600M, DVD-RW, BT, CardReader, Vista Business
$1969

ASUS F5RL-AP060C
CD T2330 1.6G, 1GB, 160GB SATA, 15.4" WXGA, DVD-RW, BT, Card Reader, Camera, Vista Home Premium
$1149

ASUS G1S-AK048G-WL
C2D T7500 2.2G, 2GB, 200GB SATA, 15.4" WSXGA 256MB 8600, DVD-RW, BT, Camera, Vista Ultimate
$2389

ASUS G2S-7R067G-WL
C2D T7500 2.2G, 2GB, 300GB SATA, 17.1" WXGA 256MB 8600, DVD-RW, BT, TV Tuner, Vista Ultimate
$2689

ASUS R2HV-BH035E
Ultra Mobile PC PM723 1G,1280MB, 80GB PATA, 7" XGA Touch Screen, Intel GMA900, BT, Vista Business
$1469

ASUS U3S-3P082G
C2D T7500 2.2G, 1.5GB, 160GB SATA, 13.3" WXGA 128MB 8400, DVD-RW, BT, Vista Ultimate, GPS
$2489

ASUS V1S-AK051G
C2D T7300 2.0G, 2GB, 160GB SATA, 15.4" WSXGA 512MB 8600, DVD-RW, BT, Camera, Vista Ultimate
$2329

ASUS V2S-4S031G
C2D T7500 2.2G, 2GB, 160GB SATA, 14.1" WXGA 512MB 8600, DVD-RW, BT, Camera, Vista Ultimate
$2429

ASUS VX2S-AK078G
C2D T7500 2.2G, 2GB, 200GB SATA, 15.4" WSXGA 512MB 8600, DVD-RW, BT Camera, Vista Ultimate Yellow
$3929

ASUS W7S-3P100E-WL
C2D T7500 2.2G, 1.5GB, 160GB SATA, 13.3" WXGA 128MB 8400, DVD-RW, BT, Vista Business
$2089

NEC Versa E6310 1500DR
C2D T5250 1.5G, 1GB, 120GB 5400, 15.4" WXGA 256MB 8600, DVD-RW, BT, Vista Business
$1589

NEC Versa S970 1801DR
C2D T7100 1.8G, 1GB, 120GB 5400, 14.1" WXGA 128MB X3100, DVD-RW, BT, Vista Business
$1349

HP 6515B GE816PA
AMD MK38 2.2G, 1GB, 80GB SATA, 14" WXGA, ATI X1250, DVD-RW, 11G, Vista Business
$949

HP 6710B GL062PA
C2D T7500 2.2G, 1GB, 120GB SATA, 15" WXGA 128MB X3100, DVD-RW, BT XP Pro
$1569

HP 6720S GU402PA
Celeron 540 1.9G, 1GB, 80GB SATA, 15.4" WXGA Intel GMA X3100, DVD-RW, 11G, Vista Business
$829

HP Presario C718TU KB116PA
DC T2310 1.46G, 512MB, 80GB 5400, 15" WXGA Intel GMA X3100, DVD-RW, 11G, Vista Home Basic
$829

HP Pavilion DV2613TU KB102PA
C2D T5250 1.5G, 1GB, 160GB 5400,14.1"WXGA, Intel X3100, DVD-RW, BT, Camera, Vista Home Premium
$1349

HP Pavilion DV6623TX KB101PA
C2D T5450 1.6G, 2GB, 160GB 5400,15.4" WXGA, 128MB 8400, DVD-RW, BT, Camera, Vista Business
$1609

HP Presario V6501TU GG187PA
C2D T7100 1.8G, 1GB, 160GB 5400, 15" WXGA 128MB X3100, DVD-RW, BT Vista Business
$1349

HP Presario V6613TU KB092PA
C2D T5250 1.5G, 1GB, 160GB 5400, 15" WXGA 128MB X3100, DVD-RW, BT Vista Home Premium
$1149

HP Presario B1201TU GQ334AS
C2D T5450 1.6G, 2GB, 160GB 5400, 12.1" WXGA 128MB X3100, DVD-RW, BT Vista Business
$1549

FUJITSU LifeBook T4220S
C2D T7300 2.0G, 2GB, 120GB SATA, 12.1" XGA, Intel GMA X3100, DVD-RW, BT, Vista Business
$2689

FUJITSU LifeBook E8410C
C2D T7300 2.0G, 1GB, 160GB SATA, 15.4" WSXGA, 128MB 8400, DVD-RW, BT, Vista Business
$1989

FUJITSU LifeBook U1010
Centrino A110, 1GB, 40GB, 5.6" Touch Screen, Webcam, BT, Fingerprint, Vista Home Premium
$1589

Lenovo N200 0687A23
C2D T7250 2.0G, 1GB, 120GB SATA, 14.1" WXGA 128MB 7300, DVD-RW, BT, Vista Business
$1509

Lenovo R61e 76506HM
Celeron 540 1.8G, 1GB, 80GB SATA, 15.4" WXGA, Intel Graphics, DVD-RW, 11G, Vista Business
$909

Lenovo R61 8932A28
C2D T7250 2.0G, 1GB, 80GB SATA, 15.4" WXGA 128MB X3100, DVD-RW, BT, Vista Business
$1369

Lenovo R61 8932A29
C2D T7500 2.2G, 1GB, 120GB SATA, 15.4" WXGA, 128MB X3100, DVD-RW, BT, Vista Business
$1689

Lenovo T61 7658I1M
C2D T7500 2.2G, 1GB, 120GB SATA, 14.1" WXGA, 128MB X3100, DVD-RW, BT, Vista Business
$2089

Lenovo X61 7676A12
C2D T7250 2.0G, 1GB, 120GB SATA, 12.1" XGA, 128MB X3100, BT, Vista Business
$2249

TOSHIBA Sat Pro A200 003007
Celeron 540 1.8G, 512MB, 80GB SATA, 15.4" WXGA Intel GMA X3100, DVD-RW, 11G, Vista Home Basic
$809

TOSHIBA Sat Pro A200 003002
C2D T2080 1.7G, 1GB, 120GB SATA, 15.4" WXGA Intel GMA943, DVD-RW, 11G Vista Home Premium
$909

TOSHIBA Sat Pro A200 001001
C2D T5450 1.6G, 1GB, 120GB SATA,15.4" WXGA, 128MB X3100, DVD-RW, 11N, Vista Business
$1049

TOSHIBA Sat Pro A200 003001
C2D T7100 1.8G, 1GB, 160GB SATA,15.4" WXGA, ATI HD2400, DVD-RW,11G, Vista Business
$1349

TOSHIBA Tecra A9 00U00F
C2D T7300 2.0G, 1GB, 80GB SATA, 15" WXGA Intel GMA965, DVD-RW, BT Vista Business
$1489

TOSHIBA Tecra M9 01V00K
C2D T7100 1.8G, 1GB, 80GB SATA, 14.1" WXGA, Intel GMA965, DVD-RW, BT Vista Business
$2089

acer EX5220-050508
Celeron M520 1.73G, 1GB, 80GB SATA, 15.4" WXGA, Intel GMA950, DVD-RW,11G, Vista Home Basic
$849

acer EX5620-1A1G12Mi
C2D T5250 1.5G, 1GB, 120GB SATA, 15.4" WXGA, Intel X3100, DVD-RW, BT, Vista Home Premium
$1089

BenQ A52V03
CD T2080 1.7G, 1GB, 80GB SATA, 15.4" WXGA, ATI 200M, DVD-RW, 11G, Vista Home Basic
$769

BenQ S31V17
C2D T2350 1.6G, 1GB, 100GB SATA, 13.3" WXGA, Intel GMA950, DVD-RW, BT, TV Tuner, Vista Home Basic
$969

LG E300-ACB10A
C2D T7250 2.0G, 1GB, 120GB SATA, 13.3" WXGA 128MB X1250, DVD-RW,BT, Vista Business
$1429

LG E500-SAP20A
C2D T7500 2.2G, 1GB, 160GB SATA, 15.4" WXGA 128MB 8400M, DVD-RW, BT, Vista Home Premium
$1529

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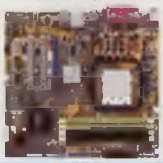
Fax: (03) 9562 8781

West Melbourne Branch
130 Dudley St., West Melbourne
Tel: (03) 9223 4288
Fax: (03) 9328 1899

M2A-VM

- Support AMD Socket AM2 CPU
- AMD 690G Chipset
- Integrated ATI Radeon X1250 graphics
- DDR2 800/667/533, 4slots, Max.8GB
- 4*SATA 300MB/s RAID 0,RAID 1, RAID10
- 1x PCI Express x16
- 6 Channel HD Audio
- Gigabit Lan
- 8 USB2 Ports



$89

M2A-VM HDMI

- Support AMD Socket AM2 CPU
- AMD 690G Chipset
- Integrated ATI Radeon X1250 graphics
- DDR2 800/667/533, 4slots, Max.8GB
- 4*SATA 300MB/s RAID 0,RAID 1, RAID10
- 2*1394a ports
- Bundled HDMI/AV/S/SPDIF module
- Support Dual-VGA output and Surround View

$99

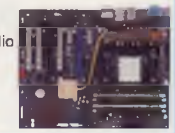
M2N-MX-SE

- Support: AMD® Socket AM2 Athlon 64 X2/Athlon 64 FX/Athlon 64/Sempron CPU
- FSB Support: 2000/1600 MT/s
- Chipset: NVIDIA nForce430/GeForce6100
- Dual-channel DDRII 800/667/533,Max.4GB
- Graphics: Integrated GeForce 6100 GPU
- 4 x SATA 3Gb/s with RAID 0, 1, 0+1, 5

$59

M2N-SLI Deluxe

- Support: AMD® Socket AM2 Athlon 64 X2/Athlon 64 FX/Athlon 64/Sempron
- FSB Support: 2000/1600 MT/s
- Chipset: NVIDIA nForce® 570 SLI™ MCP
- Dual-channel DDRII 800/667/533,Max.8GB
- 2xPCI Express x16 Support NVIDIA®SLI
- 6 x SATA 3.0Gb/s, RAID 0, 1, 0+1, 5
- 8 Channel HD Audio
- Gigabit Lan
- 1394 & 10 x USB2



$169

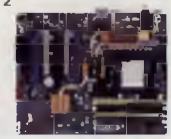
M2N-X

- Support AMD Socket AM2 CPU
- NVIDIA® nForce™ 520™ MCP
- 2000 MT/s
- Dual-channel DDR2 800/667/533
- 4XSATA/RAID 0,1,5,0+1 JBOD
- PCI Express X16
- Realtek ALC883-GR 6-channel CODEC
- CrashFree BIOS2
- ASUS Fanless Design

$79

M3A32-MVP Deluxe

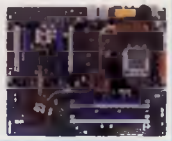
- Support AMD Socket AM2+ Phenom™ FX/Phenom X4/Phenom X2/Athlon™ X2 CPU
- Dual-Channel DDR21066/800/667, Max.8G
- 4 x PCIe 2.0 Gfx with ATI CrossFireX™
- Precision Tweaker 2
- 8+2 Phase Power Design
- ASUS Q-Shield
- Gigabit Lan
- 2x1394, 10xUSB2



$329

Blitz Extreme

- Support Intel® Core™2 Extreme / Core™2 Quad / Core™2 Duo CPU
- Chipset: Intel® P35 / ICH9R
- Dual-channel DDR3 1333/1066, Max. 8GB
- Fusion Block System
- Crosslinx
- Extreme Tweaker
- SupremeFX II
- Dual Gigabit LAN
- 2x1394, 12xUSB2



$359

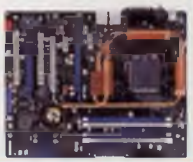
Maximus Formula (Special Edition)

- Support Intel® Core™2 Extreme / Core™2 Quad / Core™2 Duo CPU
- Dual channel DDR2-1200*/1066/800/667, 4 x DIMM, support max. 8GB
- Fusion Block System
- Extreme Tweaker
- SupremeFX II 8-CH Audio
- Dual Gigabit LAN
- 2x1394, 12xUSB2

$439

Striker Extreme

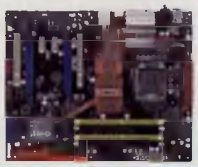
- Intel® Quad-core CPU Ready
- Intel® Core™2 Extreme/ Duo Ready
- NVIDIA nForce® 680i SLI™
- Dual-channel DDR2 800/667/533
- SupremeFX / DTS Connect / Array Mic / Noise Filter
- Extreme Tweaker
- LCD Poster
- Onboard LED
- Onboard Switches



$409

P5E

- Supports Intel® Core™2 Extreme / Core™2 Quad / Core™2 Duo CPU
- Intel® X38 Chipset, FSB1600/1333/1066
- Dual Channel DDR2 1200 / 1066 / 800 / 667, Max. 8GB
- ASUS EPU
- Gigabit LAN
- 2x1394, 12xUSB2



$309

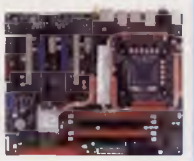
P5E3

- Supports Intel® Core™2 Extreme / Core™2 Quad / Core™2 Duo CPU
- Intel® X38 Chipset, FSB1600/1333/1066
- Dual-channel DDR3 1800/1600/1333/1066/800 MHz, Max. 8GB
- ASUS EPU
- Gigabit LAN
- 2x1394, 12xUSB2

$329

P5E3 Deluxe/WiFi

- Supports Intel® Core™2 Extreme / Core™2 Quad / Core™2 Duo CPU
- Intel® X38 Chipset, FSB1600/1333/1066
- Dual-channel DDR3 1800/1600/1333/1066/800 MHz, Max. 8GB
- ASUS EPU
- ASUS Express Gate
- ASUS WiFi-AP
- ASUS 8-phase Power Design



$509

P5E WS Pro

- Supports Intel® Core™2 Extreme / Core™2 Quad / Core™2 Duo CPU
- Intel® X38 Chipset, FSB1600/1333/1066
- Dual Channel DDR2 1200 / 1066 / 800 / 667, Max. 8GB
- Dual PCIe 2.0 x 16 Graphics
- Dual Gigabit LAN
- 2x1394, 12xUSB2

$449

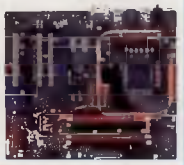
P5K

- Supports Intel® Core™2 Extreme / Core™2 Quad / Core™2 Duo CPU
- Intel® P35 Chipset, FSB1333/1066/800
- Dual Channel DDR2 1066/800/667Mhz, Max. 8GB
- Gigabit LAN
- 2x1394, 12xUSB2
- All High-quality Conductive Polymer Capacitors

$149

P5K3 Deluxe WiFi

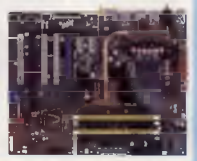
- Supports Intel® Core™2 Extreme / Core™2 Quad / Core™2 Duo CPU
- Intel® P35 Chipset, FSB1333/1066/800
- Dual Channel DDR3 1333/1066/800Mhz, Max. 8GB
- Pure Copper Heat Pipe & Stack Cool 2
- 6*SATA/2*SATA on the Go/ 1394
- Dual Gigabit LAN • WiFi-AP



$309

P5K Deluxe WiFi

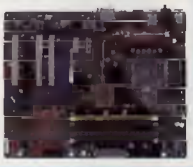
- Supports Intel® Core™2 Extreme / Core™2 Quad / Core™2 Duo CPU
- Intel® P35 Chipset, FSB1333/1066/800
- Dual Channel DDR2 1066/800/667Mhz, Max. 8GB
- Heat Pipe & Stack Cool 2
- 6*SATA/2*SATA on the Go/ 1394
- Dual Gigabit LAN
- WiFi-AP



$279

P5K-E WiFi

- Supports Intel® Core™2 Extreme / Core™2 Quad / Core™2 Duo CPU
- Intel® P35 Chipset, FSB1333/1066/800
- Dual Channel DDR2 1066/800/667Mhz, Max. 8GB
- Heat Pipe & Stack Cool 2
- 6*SATA/2*SATA on the Go/ 1394
- Gigabit LAN
- WiFi-AP



$219

P5KPL

- Supports Intel® Core™2 Quad / Core™2 Extreme / Core™2 Duo CPU
- Intel® G31 Chipset, FSB1333/1066/800
- Dual Channel DDR2800/667Mhz, Max. 4G
- 4x SATA 3Gb/s
- Gigabit LAN
- 6-channel HD Audio
- EZ Flash2 & CrashFree BIOS3

$99

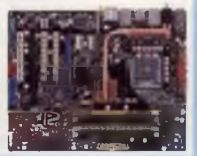
P5KPL-VM

- Supports Intel® Core™2 Quad / Core™2 Extreme / Core™2 Duo CPU
- Intel® G31 Chipset, FSB1333/1066/800
- Dual Channel DDR2800/667Mhz, Max. 4G
- Intel Graphics Media Accelerator (Intel® GMA 3100) integrated
- 6-channel High Definition Audio
- EZ Flash2 & CrashFree BIOS3

$109

P5K Premium

- Supports Intel® Core™2 Extreme / Core™2 Quad / Core™2 Duo CPU
- Intel® P35 Chipset, FSB1333/1066/800
- Dual Channel DDR2 1066/800/667Mhz, Max. 8GB
- Dual Gigabit LAN
- 8-channel High Definition Audio• 2x1394, 10xUSB2



$269

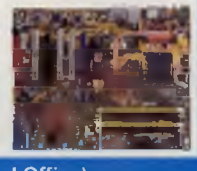
P5KC

- Supports Intel® Core™2 Extreme / Core™2 Quad / Core™2 Duo CPU
- Intel® P35 Chipset, FSB1333/1066/800
- Dual Channel DDR2 1066/800/667 MHz or DDR3 1333/1066/800, Max. 8GB DDR2 or 4GB DDR3
- Stack Cool 2
- Heat Pipe
- 2x1394
- 12xUSB 2.0

$179

P5KR

- Supports Intel® Core™2 Extreme / Core™2 Quad / Core™2 Duo CPU
- Intel® P35 Chipset, FSB1333/1066/800
- Dual Channel DDR2 1066/800/667 MHz Max. 8GB
- Heat Pipe
- 5xSATA/SATA on the Go/ 2x1394
- 12xUSB



$159

P5K-SE

- Supports Intel® Core™2 Extreme / Core™2 Quad / Core™2 Duo CPU
- Intel® P35 Chipset, FSB1333/1066/800
- Dual Channel DDR2 1066/800/667Mhz, Max. 8GB
- Gigabit LAN
- 12xUSB2
- 8 Channel Audio

$129

P5N-E SLI

- Intel® Quad-Core
- Dual-channel DDR2 800/667/533
- Great performance and overclocking
- ASUS O.C. Profile
- ASUS Fanless Design
- 2 IEEE 1394a
- 5 x SATA 3.0 Gb/s (including 1 x SATA On-the-Go)
- ASUS Q-Connector

$149

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Fax: (03) 9562 8781

West Melbourne Branch
130 Dudley St., West Melbourne
Tel: (03) 9223 4288
Fax: (03) 9328 1899

GIGABYTE™ G31MX-S2

- Support: Intel® Core™ 2 Extreme/ Core™ 2 Quad/ Core™ 2 Duo CPU
- Intel G31 Chipset, FSB1333/1066/800 MHz
- Dual channel DDR2 800/667, Max. 4GB
- Intel Graphics Media Accelerator3100 VGA
- Gigabit LAN
- Virtual Dual BIOS
- HD Audio
- 8 x USB2

$109

GIGABYTE™ G33-DS3R

- Support: Intel® Core™ 2 Extreme/ Core™ 2 Quad/ Core™ 2 Duo CPU
- Intel G33 Chipset, FSB1333/1066/800 MHz
- Dual channel DDR2 800/667, Max. 8GB
- Intel Graphics Media Accelerator3100 VGA
- RAID 0,1, 5,10 (ICH9R) / RAID 0,1, JBOD
- Gigabit LAN
- Virtual Dual BIOS
- HD Audio
- 12 x USB2

$169

GIGABYTE™ G33M-DS2R

- Support: Intel® Core™ 2 Extreme/ Core™ 2 Quad/ Core™ 2 Duo CPU
- Intel G33 Chipset, FSB1333/1066/800 MHz
- Dual channel DDR21066/800/667, Max.8G
- Intel Graphics Media Accelerator3100 VGA
- SATA Raid 0,1,5,10
- Gigabit LAN
- Virtual Dual BIOS
- 8-Channel Audio
- 3x1394, 12xUSB2

$149

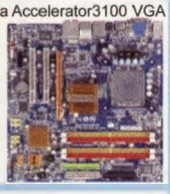
GIGABYTE™ G33M-S2

- Support: Intel® Core™ 2 Extreme/ Core™ 2 Quad/ Core™ 2 Duo CPU
- Intel G33 Chipset, FSB1333/1066/800 MHz
- Dual channel DDR21066/800/667, Max.8G
- Intel Graphics Media Accelerator3100 VGA
- Gigabit LAN
- Virtual Dual BIOS
- 8-Channel Audio
- 3x1394, 12xUSB2

$139

GIGABYTE™ G33M-S2H

- Support: Intel® Core™ 2 Extreme/ Core™ 2 Quad/ Core™ 2 Duo CPU
- Intel G33 Chipset, FSB1333/1066/800 MHz
- Dual channel DDR21066/800/667, Max.8G
- Intel Graphics Media Accelerator3100 VGA
- Gigabit LAN
- Virtual Dual BIOS
- 8-Channel Audio
- 3x1394, 12xUSB2
- Integrated HDMI interface



$149

GIGABYTE™ N650SLI-DS4L

- Support: Intel® Core™ 2 Extreme/ Core™ 2 Quad/ Core™ 2 Duo CPU
- NVIDIA® nForce 650i SLI Chipset, FSB1333/1066/800 MHz
- Dual channel DDR21066/800/667,Max.8G
- Dual PCI-E x16 interface with NVIDIA SLI support
- SATA 3Gb/s with RAID
- Gigabit Lan and IEEE1394

$159

GIGABYTE™ P31-DS3L

- Support: Intel® Core™ 2 Extreme/ Core™ 2 Quad/ Core™ 2 Duo CPU
- Intel P31 Chipset, FSB1333/1066/800 MHz
- Dual channel DDR2 1066/800/667,Max.4G
- PCI-E x16 interface
- Integrated SATA 3Gb/s with RAID
- Gigabit LAN
- Virtual Dual BIOS
- 8 Channel Audio

$109

GIGABYTE™ P31-S3G

- Support: Intel® Core™ 2 Extreme/ Core™ 2 Quad/ Core™ 2 Duo CPU
- Intel P31 Chipset, FSB1333/1066/800 MHz
- Dual channel DDR2 1066/800/667,Max.4G
- PCI-E x16 interface
- Solid capacitors design
- Gigabit LAN
- Virtual Dual BIOS
- 6 Channel Audio

$119

GIGABYTE™ P35C-DS3R

- Support: Intel® Core™ 2 Extreme/ Core™ 2 Quad/ Core™ 2 Duo CPU
- Intel P35 Chipset, FSB1333/1066/800 MHz
- Dual channel DDR2 1066/800/667,Max.8G or DDR3 1333/1066/800, Max. 4GB
- PCI-E x16 interface
- Integrated SATA 3Gb/s with RAID
- Gigabit LAN
- Virtual Dual BIOS
- 8 Channel Audio

$169

GIGABYTE™ P35-DS3

- Support: Intel® Core™ 2 Extreme/ Core™ 2 Quad/ Core™ 2 Duo CPU
- Intel P35 Chipset, FSB1333/1066/800 MHz
- Dual channel DDR2 1066/800/667,Max.8G
- PCI-E x16 interface
- Integrated SATA 3Gb/s with Raid
- Gigabit LAN
- Virtual Dual BIOS
- 8 Channel Audio

$139

GIGABYTE™ P35-DS3L

- Support: Intel® Core™ 2 Extreme/ Core™ 2 Quad/ Core™ 2 Duo CPU
- Intel P35 Chipset, FSB1333/1066/800 MHz
- Dual channel DDR2 1066/800/667,Max.8G
- PCI-E x16 interface
- Integrated SATA 3Gb/s
- Gigabit LAN
- Virtual Dual BIOS
- 8 Channel Audio

$129

GIGABYTE™ P35-DS3P

- Support: Intel® Core™ 2 Extreme/ Core™ 2 Quad/ Core™ 2 Duo CPU
- Intel P35 Chipset, FSB1333/1066/800 MHz
- Dual channel DDR2 1066/800/667,Max.8G
- Dual PCI-E x16 interface
- Integrated SATA 3Gb/s with Raid
- Gigabit LAN
- Virtual Dual BIOS
- 8 Channel Audio
- 3x1394, 12xUSB2

$169

GIGABYTE™ P35-DS3R

- Support: Intel® Core™ 2 Extreme/ Core™ 2 Quad/ Core™ 2 Duo CPU
- Intel P35 Chipset, FSB1333/1066/800 MHz
- Dual channel DDR2 1066/800/667,Max.8G
- PCI-E x16 interface
- Integrated SATA 3Gb/s with Raid
- Gigabit LAN
- Virtual Dual BIOS
- 8 Channel Audio
- 12xUSB2

$159

GIGABYTE™ P35-DS4

- Support: Intel® Core™ 2 Extreme/ Core™ 2 Quad/ Core™ 2 Duo CPU
- Intel P35 Chipset, FSB1333/1066/800 MHz
- Dual channel DDR2 1066/800/667,Max.8G
- Dual PCI-E x16 interface
- Integrated SATA 3Gb/s with Raid
- Gigabit LAN
- Virtual Dual BIOS
- 8 Channel Audio
- 3x1394, 12xUSB2
- Copper Silent Pipe

$229

GIGABYTE™ X38-DQ6

- Support: Intel® Core™ 2 Extreme/ Core™ 2 Quad/ Core™ 2 Duo CPU
- Intel X38 Chipset, FSB1600/1333/1066/800
- Dual channel DDR2 1066/800/667,Max.8G
- Dual PCI-E x16 interface
- Integrated SATA 3Gb/s with Raid
- Gigabit LAN
- Virtual Dual BIOS
- 8 Channel Audio
- 3x1394, 12xUSB2
- Copper Silent Pipe

$349

GIGABYTE™ X38T-DQ6

- Support: Intel® Core™ 2 Extreme/ Core™ 2 Quad/ Core™ 2 Duo CPU
- Intel X38 Chipset, FSB1600/1333/1066/800
- Dual channel DDR3 1600/1333/1066, 8GB
- Dual PCI-E x16 interface
- Integrated SATA 3Gb/s with Raid
- Gigabit LAN
- Virtual Dual BIOS
- 8 Channel Audio
- 3x1394, 12xUSB2
- Copper Silent Pipe

$349

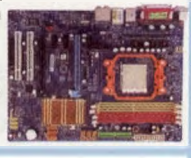
GIGABYTE™ M56S-S3

- Support: AMD Athlon™64 X2/ Athlon™64 socket AM2 platform
- NVIDIA® nForce 560 Chipset
- Dual channel DDR2 800/667/533, 4 slots, Max. 16GB
- PCI Express X16
- SATA 3Gb/s with RAID function
- Gigabit Lan
- Integrated 1394
- 8 Channel Audio

$99

GIGABYTE™ M57SLI-S4

- Support: AMD Athlon™64 X2/ Athlon™64 socket AM2 platform
- NVIDIA nForce 570-SLI Chipset
- Dual channel DDR2 800/667/533, 4 slots, Max. 16GB
- PCI Express X16
- SATA 3Gb/s with RAID function
- Gigabit Lan
- Integrated 1394
- 8 Channel Audio



$139

GIGABYTE™ M61P-S3

- AMD Athlon™64 X2 / Athlon™64 Socket AM2 platform
- NVIDIA® GeForce 6100 Chipset
- Dual channel DDR2 800/667/533,Max.16G
- Integrated NVIDIA® CineFX 3.0 Graphics
- NVIDIA® SATA 3Gb/s with RAID function
- Gigabit LAN and IEEE1394
- 8 channel High Definition Audio

$99

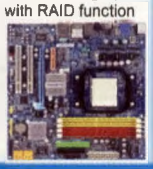
GIGABYTE™ M61SME-S2L

- AMD Athlon™64 X2 / Athlon™64 Socket AM2 platform
- NVIDIA® GeForce 6100 chipset
- Dual channel DDR2 800/667/533, 2 slots, Max. 8GB
- Integrated NVIDIA® CineFX 3.0 Graphics
- NVIDIA® SATA 3Gb/s with RAID function
- 10/100 LAN
- 8 channel High Definition Audio

$79

GIGABYTE™ MA69GM-S2H

- AMD Athlon™64 X2 / Athlon™64 Socket AM2 platform
- AMD 690G Chipset
- Dual channel DDR2 800/667/533,Max.16G
- Integrated ATI™ Radeon™ X1250 graphics
- NVIDIA® SATA 3Gb/s with RAID function
- Gigabit LAN and IEEE1394
- 8 channel High Definition Audio
- Integrated DVI/ HDMI



$99

GIGABYTE™ MA69G-S3H

- AMD Athlon™64 X2 / Athlon™64 Socket AM2 platform
- AMD 690G Chipset, Dual PCI-E
- Dual channel DDR2 800/667/533,Max.16G
- Integrated ATI™ Radeon™ X1250 graphics
- NVIDIA® SATA 3Gb/s with RAID function
- Gigabit LAN and IEEE1394
- 8 channel High Definition Audio
- Integrated DVI/ HDMI

$109

intel S5000VSASATAR

- Intel Server motherboard

- Support: 1 or 2 Intel Xeon Dual Core 5XXX
- Chipset: Intel S5000V
- 32GB DDR2 533/667 MHz Buffered ECC FBDIMMs (8)
- ATI ES1000 video (16Mb)
- 2 x Intel® Gigabit Lan
- Dual-channel SATA, RAID 0,1

$499

intel S5000VSASASR

- Intel Server motherboard

- Support: 1 or 2 Intel Xeon Dual Core 5XXX
- Chipset: Intel Chipset 5000V
- 16GB DDR2 Buffered ECC FBDIMMs (8)
- ATI ES1000 video 16MB
- 2 x Intel® Gigabit Lan
- 4-port SAS
- Dual-channel SATA, RAID 0,1,10

$669

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CPU

Intel Celeron Processor

Celeron D420 / D430 / D440 775	$49/59/79

Intel Pentium 4 Processor

Dual Core E2140 / E2160 / E2180	$89/99/109
Core2 Duo E4500 / E4600	$159/179
Core2 Duo E6550 / E6750 / E6850	$209/239/339
Core2 Quad Q6600 / Q6700 / QX6850	$339/659/1269
Xeon 5310 / 5320 / 5335	$309/369/449
Xeon 5345 / 5355	$629/999

AMD Processor

AMD Sempron 2600 / 2800 754	$35/39
AM2 Athlon 64 Dual Core X2 4000 / 4400	$85/105
AM2 Athlon 64 Dual Core X2 4800 / 5200	$125/149
AM2 Athlon 64 Dual Core X2 5600 / 6000	$169/195
AM2 Athlon 64 Dual Core X2 6400	$289
AMD Opteron Dual Core 265	$189
AMD Opteron Quad Core 2347	$469

RAM

DDR RAM

512MB PC2100 / 2700 DDR Kingston	$59/59
512MB PC3200 DDR Kingston / Corsair	$49/49
1GB PC2100 / 2700 DDR Kingston	$99/99
1GB PC3200 DDR Kingston / Corsair	$89/89

DDR2 RAM

512MB PC4200 / 5300 DDR2 Kingston	$25/25
1GB PC4200 / 5300 DDR2 Kingston Single Stick	$35/35
1GB PC6400 DDR2 Kingston Single Stick	$59
1GB PC4200 / 5300 DDR2 Kingston (2x512MB)	$50/50
2GB PC5300 DDR2 Kingston Single Stick	$99
2GB PC4200 / 5300 DDR2 Kingston (2x1GB)	$70/70
2GB PC6400 DDR2 Kingston (2x1GB)	$118
2GB PC6400 DDR2 Kingston HyperX (2x1GB)	$169
2GB PC8500 DDR2 Kingston HyperX (2x1GB)	$209
4GB PC5300 DDR2 Kingston (2x2GB)	$198

512MB PC4200 / 5300 DDR2 Corsair	$25/25
1GB PC4200 / 5300 DDR2 Corsair Single Stick	$38/38
1GB PC4200 / 5300 DDR2 Corsair (2x512MB)	$50/50
2GB PC4200 / 5300 DDR2 Corsair (2x1GB)	$76/76
2GB PC5400 C4 DDR2 Corsair (2x1GB)	$89
2GB PC6400 C5 DDR2 Corsair (2x1GB)	$109
2GB PC6400 C5DHX DDR2 Corsair (2x1GB)	$119
2GB PC6400 C4 DDR2 Corsair (2x1GB)	$139
2GB PC6400 C4DHX DDR2 Corsair (2x1GB)	$149
2GB PC8500 C5D DDR2 Corsair (2x1GB)	$249
2GB PC8500 C5DF DDR2 Corsair (2x1GB)	$269
4GB PC6400 C5 DDR2 Corsair (2x2GB)	$329

2GB PC6400 C4 DDR2 OCZ Platinum R2 (2x1GB)	$119
2GB PC6400 C4 DDR2 OCZ SLI EPP (2x1GB)	$139
2GB PC6400 C4 DDR2 OCZ Reaper (2x1GB)	$149
2GB PC8500 DDR2 OCZ SLI EPP (2x1GB)	$249
2GB PC8500 DDR2 OCZ Reaper (2x1GB)	$269
4GB PC6400 DDR2 OCZ Platinum XTC (2x2GB)	$319
4GB PC6400 DDR2 OCZ Reaper HPC (2x2GB)	$339

2GB PC6400 DDR2 Transcend (2x1GB)	$119
4GB PC5300 DDR2 Transcend (2x2GB)	$189

DDR3 RAM

1GB PC8500 DDR3 Kingston Single Stick	$269
2GB PC8500 DDR3 Kingston (2x1GB)	$538
2GB PC8500 C7G DDR3 Corsair (2x1GB)	$449
2GB PC10600 C9G DDR3 Corsair (2x1GB)	$499

RAM for Server

1GB PC5300 DDR2 Kingston ECC Fully Buffered	$149
2GB PC5300 DDR2 Kingston ECC Fully Buffered	$299

LAPTOP RAM

256MB / 512MB PC133 SD Generic	$59/149
512MB PC2100 / 2700 DDR Kingston	$69/69
1GB PC2700 DDR Hynix / Kingston	$139/149
512MB PC4200 / PC5300 DDR2 Kingston	$29/29
1GB PC4200 / PC5300 DDR2 Kingston	$69/69
1GB PC4200 / PC5300 DDR2 Corsair	$69/69
2GB PC5300 DDR2 Kingston / Corsair	$149/149

Hard Drive

Seagate Hard Drive for PC

80GB IDE 2MB / SATAII 8MB	$54/56
160GB IDE 8MB / SATAII 8MB	$65/65
250GB IDE 16MB / SATAII 16MB	$89/89
320GB IDE 16MB / SATAII 16MB	$109/109
400GB IDE 16MB / SATAII 16MB	$139/139
500GB IDE 16MB / SATAII 16MB	$179/179
750GB IDE 16MB / SATAII 16MB	$289/289
320GB / 400GB SATAII 16MB NS	$129/159
500GB / 750GB SATAII 16MB NS	$199/349
1TB SATAII 16MB AS / NS	$459/539
73GB / 146GB 10K Scsi 68pin	$249/369
73GB / 146GB 15K SAS 68pin	$369/589

Western Digital Hard Drive for PC

80GB IDE 8MB / SATA 8MB	$52/54
160GB IDE 8MB / SATAII 8MB	$59/65
250GB IDE 8MB / SATAII 16MB	$85/89
320GB IDE 8MB / SATAII 16MB	$93/99
400GB / 500GB SATAII 16MB	$125/149
750GB SATAII 16MB KS / YS	$259/319
1TB SATAII 16MB	$399
36GB Raptor 10K SATA 16MB	$139
74GB Raptor 10K SATA 16MB	$189
150GB Raptor 10K SATA 16MB	$289

Corsair USB Flash Drive

- Corsair Voyager, Voyager GT, Survivor (Water Resistant) USB2.0 Flash Drive

Voyager 1GB/ 2GB/ 4GB	*$25/39/55*
Voyager 8GB/ 16GB	*$115/225*
Voyager GT 4GB / 8GB	*$119/209*
Survivor 4GB/ 16GB	*$79/259*
Survivor GT 8GB	*$229*

Kingston USB Flash Drive

- The latest Kingston DataTraveler 2.0 Hi-Speed USB storage solution enjoys a 3Mbps speed increase and a sleek-yet-practical exterior case redesign.

1GB/ 2GB/ 4GB *$19/35/49*

Sandisk USB Flash Drive

- SanDisk Cruzer Micro and Cruzer Titanium High Speed USB 2.0 flash drive

Cruzer Micro 1GB/ 2GB/ 4GB $25/35/59
Cruzer Titanium 1GB/ 2GB/ 4GB $29/45/75

Transcend USB Flash Drive

- JetFlash™V30 ranges from 1GB all the way up to 8GB, and offers exceptional value per megabyte.

JetFlash 1GB/ 2GB	*$19/29*
JetFlash 4GB/ 8GB	*$49/95*

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Fax: (03) 9328 1899

Laptop Hard Drive

HITACHI

80GB IDE 5400	$89
100GB IDE 7200	$169
100GB SATA 7200	$169
160GB IDE 5400	$159
160GB SATA 5400	$169

SAMSUNG

120GB IDE 5400	$95
160GB IDE 5400	$129
160GB SATA 5400	$129
250GB SATA 5400	$219

Seagate

120GB IDE 5400	$109
120GB SATA 5400	$109
120GB SATA 7200	$159
160GB IDE 5400	$149

WD Western Digital

120GB IDE 5400	$99
120GB SATA 5400	$109
160GB IDE 5400	$129
160GB SATA 5400	$129
250GB SATA 5400	$239

External Hard Drive

LACIE

LaCie Hard Drive, Design by F.A. Porsche 160GB
Hi-Speed USB 2.0
2.5"

$149

LaCie Hard Drive, Design by F.A. Porsche 500GB
Hi-Speed USB 2.0
3.5"

$189

LaCie Rugged All-Terrain Hard Disk 160GB
FireWire 800, FireWire 400 & Hi-Speed USB 2.0 2.5"

$249

Lacie External Hard Drives

* 2.5" Porsche 120GB Combo	$159
* 3.5" d2 Quadra 500GB	$319
* 3.5" Bigger Disk 1TB Triple	$469
* 3.5" Bigger Disk 2TB Triple	$999
* 3.5" Ethernet Disk mini 500G	$339
* 3.5" Ethernet Big Disk 1TB	$549

Maxtor

Maxtor One Touch 4 Mini 120GB
Hi-Speed USB 2.0
2.5"

$159

Maxtor One Touch 4 Plus 500GB FireWire 400 & Hi-Speed USB 2.0 3.5"

$259

Maxtor Shared StorageII 500GB Ethernet
Gigabit Ethernet & Hi-Speed USB2.0 3.5"

$339

Maxtor External Hard Drive

* 2.5" OneTouch4 Mini 80GB	$129
* 2.5" OneTouch4 Mini 160GB	$189
* 3.5" Basic Storage 500GB	$209
* 3.5" Touch4+ 250GB Combo	$179
* 3.5" Touch4+ 750GB Combo	$409
* 3.5" Shared StorageII 1TB	$589

Seagate

Seagate FreeAgent Go 120GB
Hi-Speed USB 2.0
2.5"

$129

Seagate FreeAgent Go 250GB
Hi-Speed USB 2.0
3.5"

$129

Seagate FreeAgent Pro 500GB
Hi-Speed USB 2.0 & E-SATA 3.5"

$239

Seagate External Hard Drive

* 2.5" Freeagent Go 80GB	$109
* 2.5" Freeagent Go 160GB	$159
* 3.5" Freeagent Go 320GB	$159
* 3.5" Freeagent Go 500GB	$199
* 3.5" Freeagent Pro 320GB	$189
* 3.5" FA Pro 500GB Triple	$259
* 3.5" Storage Server 320GB	$199

WD Western Digital

WD Passport Portable 160GB
Hi-Speed USB 2.0
2.5"

$169

WD MyBook Essential 320GB
Hi-Speed USB 2.0
3.5"

$169

WD MyBook Home Edtion 1TB FireWire 400, USB 2.0 & E-SATA 3.5"

$489

WD External Hard Drives

* 2.5" Passport Portable 120G	$139
* 2.5" Passport Portable 250G	$249
* 3.5" Elements 400GB USB2	$159
* 3.5" MyBook Essential 750G	$319
* 3.5" MyBook Premium 750G	$389
* 3.5" MyBook PremiumII 1TB	$509
* 3.5" MyBook World EdII 1TB	$569

Hard Drive Accessories

VANTEC Nexstar3 USB2 Enclosure

Vantec USB2 Aluminum Casing, transfer rates up to 480Mbps w/ USB2.0, hot-swappable: plug and play without rebooting
Available in blue, black & red color

2.5"/3.5"/5.25"
$35/49/59

VANTEC Nexstar3 USB2 & 1394 Enclosure

Vantec USB2 & 1394 Combo Aluminum Casing, transfer rates up to 480Mbps w/ USB2.0, support firewire, hot-swappable: plug and play without rebooting.
Available in blue, black & red color

2.5"/3.5"/5.25"
$49/59/69

VANTEC Nexstar3 SATA & USB2 Enclosure

Vantec SATA & USB2 Aluminum Casing, transfer rates up to 3Gbps W/ eSATA and 480Mbps w/ USB2.0, hot-swappable: plug and play without rebooting, supports up to 400GB Hard Drives, Available in black color

2.5"/3.5"
$45/59

VANTEC Nexstar LS 3.5" Lan Enclosure

Vantec NexStar LS LAN Share, an Ethernet and USB 2.0 combination IDE HDD enclosure for instant and secure LAN connection with simple driver installation, making it the perfect centralized storage center for small office or home.

$99

COOLER MASTER 3.5" X-Craft RX-3HU-S

- Tool-free & Easy Installation
- Fan-less Silent Heat Dissipation
- HDD Shock-proof Mechanism
- Supports All 3.5" PATA Hard Disk Drives
- Attractive Blue LED for power and red LED for HDD Activity

$45

COOLER MASTER 3.5" X-Craft RX-3HU

- Tool-free & Easy Installation
- Fan-less Silent Heat Dissipation
- HDD Shock-proof Mechanism
- Supports All 3.5" PATA Hard Disk Drives
- Attractive Blue LED for power and red LED for HDD Activity
- with USB Hub

$55

COOLER MASTER 3.5" X-Craft RX-3SB-S

- Tool-free & Easy Installation
- Fan-less Silent Heat Dissipation
- HDD Shock-proof Mechanism
- Supports All 3.5" eSATA Hard Disk Drives
- Attractive Blue LED for power and red LED for HDD Activity

$49

COOLER MASTER 3.5" X-Craft RX-3SB

- Tool-free & Easy Installation
- Fan-less Silent Heat Dissipation
- HDD Shock-proof Mechanism
- Supports All 3.5" eSATA Hard Disk Drives
- Attractive Blue LED for power and red LED for HDD Activity
- with USB Hub

$59

Antec MX-1 3.5" SATA HDD External Enclosure

Antec MX-1 3.5" SATA HDD External Enclosure, Actively cooled. USB2.0 and eSATA interfaces, Supports up to 750GB SATA HDD. Includes USB cable, eSATA cable and eSATA bracket.

$89

ViPower Aluminium Mobile Rack VP-410LS2FU

- IDE UDMA 133/100/66
- Compatible with 3.5" IDE devices
- Aluminum
- Two Fans
- Available in Black
- Dimensions: 8.4"(D) x 5.8"(W) x 1.6"(H)

$39

ViPower SATA Mobile Rack VPP-2010LS2F

- Compatible with Serial ATA 1.0 /2.0 devices
- Plastic, Hot-Swap, Plug-n-Play
- Two Fans ,Lancth switch power switch
- Dimensions: 7.4"(D) x 5.8"(W) x 1.6"(H).

$29

ViPower SATA Aluminium Mobile Rack VP-5010LSF

- Compatible with Serial ATA 1.0 devices
- True Aluminum
- Hot-Swapable
- Available in Black
- Dimensions: 7.4"(D) x 5.8"(W) x 1.6"(H).

$49

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Tel: (03) 9223 4288
Fax: (03) 9328 1899

LG GSA-H55NK IDE

- 20X IDE Super Multi DVD Rewriter
- Compatible with all DVD formats
- Supports Double Layer DVD+R / -R
- Black Color

$49

LG GSA-H62N SATA

- 20X SATA Super Multi DVD Rewriter
- Compatible with all DVD formats
- Supports Double Layer DVD+R / -R

Available in: Beige / Black Color

$49

LITEON LH-20A1P IDE

LiteOn 20x Dual Layer DVD-Writer, 20x 8x 8x / 20x 8x 6x / 12X / 16x / + 48x 32x 48x E-IDE, support DVD-RAM, Double Layer DVD+/-R9, SMART-BURN, SMART-X, ABS® mechanism.Included Nero6 & Power DVD

Available in: Beige / Black

$45

LITEON LH-20A1H IDE

Lightscribe

- Lightscribe technology to print labels directly to the disk using the same drive
- Burns an image on to one side of the lightscribe disk and record the data on to the other side

$49

LITEON LH-20A1L SATA

Lightscribe

20x 8x 8x / 20x 8x 6x / 12x /16x + 48x 32x 48x Serial ATA DVD-Dual, support Lightscribe, DVD-RAM, DVD+/-R DL, SMART-BURN, SMART-X mechanism.

$55

LITEON SHM-165P6SU

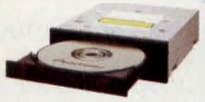
External DVD-RW

External 16x 8x / 8x / 16x 6x / 4x / 5x /+ 48x 24x 48x E-IDE Super AllWrite, support Double Layer DVD+/-R9, DVD-RAM, SMART-BURN, SMART-X, ABS® mechanism

$109

Pioneer DVR-115DBK IDE

- 10X/20X Dual/Single DVD Writer.
- OEM drive
- Black Color

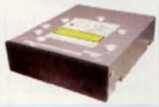


$49

Pioneer 212D SATA

Pioneer DVR-212D 18X DVD/CD Writer with SATA interface. 8x +/-Dual Layer, 18x DVD-/+R, 6x DVD-RW/8x DVD+RW, 40x CD-R, 32x CD-RW. Features "Buffer Under Run" protection, "Quiet Drive" firmware utility

Available in: Beige/Black



$49

Pioneer A12XLA

Pioneer DVR-A12XLA Retail DVD-RW, 8X / 18X Dual/Single, 12X RAM write, Includes Cyberlink DVD Solutions Software

Available in: Beige/ Black

$65

Pioneer DVR-K06

Slim Slot DVD-RW

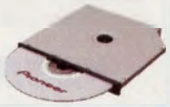
Pioneer DVR-K06 8X8 DVD-RW, Slot Black Color, Dual layer -R & +R. Slimline OEM drive, suitable for compatible notebooks and 12.7mm drive bays.

$109

Pioneer DVR-K17

Slim Tray DVD-RW

PIONEER DVR-K17 8 x 8 Tray DVD Writer Dual Layer (4x) / RAM write (5x) Slim line



$89

Pioneer 10BDC-S02BK

Blu-Ray Combo Drive

Pioneer Blu-Ray Combo Drive, SATA Interface

$339

ASUS 2014BLT SATA

Lightscribe

Asus 2014BLT 20x SATA Lightscribe DVD-RW

Available in: Beige / Black Color

$55

SONY AWG170A10/ AB

- SONY Dual Layer DVD+RW/+R, DVD-RW/-R OEM drive, 18x DVD+/-R, 8x +RW, 8x +R DL 6x -RW, 4x -R DL & 5x DVD-Ram

Available in: Beige / Black

$49

SONY DRU840A IDE

- DVD-Rrecording speed 20X max.
- Double Layer +R performace to 8X.
- Includes Nero 6.6 SW & Black Face Plate

$79

SONY DRX830UL Ext. Dual Layer DVD-RW

- Burn Double Layered DVDs in both +&- formats.
- 8X Double Layer burning
- 18X DVD Recording/playback
- USB & 1394 interface

$169

CD Media

Benq 80min CD-R 50pcs spindle	$15
Shintaro 80min CD-R 50pcs Printable	$15
TDK 80min CD-R 50pcs spindle	$18
TDK 80min CD-R 100pcs spindle	$29

DVD Media

Benq DVD-R / +R 16x 50pcs spindle	$15
Benq DVD+RW 4x 10pcs	$12
HP DVD-R / +R 16x 50pcs spindle	$22
Philips DVD-R / +R 16x 50pcs spindle	$22
Philips DVD+RW 4x 10pcs	$12
Ritec DVD-R / +R 8x 50pcs spindle	$22
Ritec DVD+RW 4x 10pcs	$12
Shintaro DVD-R / +R 16x 50pcs spindle	$19
Shintaro DVD+RW 4x 10pcs	$12
TDK DVD-R 16x 70pcs spindle	$39
TDK DVD-R / +R 16x 100pcs spindle	$49
TDK DVD+R Dual Layer	$5
Verbatim DVD-R / +R 16x 50pcs spindle	$25
Verbatim DVD-R Dual Layer	$5
Verbatim DVD+R Lightscribe 30pcs	$25
Panasonic DVD-RAM 4.7G w/Cartridge	$6
Panasonic DVD-RAM 9.4G	$12

Zip Disk

Zip Disk 250MB	$18
Zip Disk 750MB	$23

Tablet

WACOM Bamboo/ Bamboo Fun Tablets

Bamboo Fun - Edit.. Paint.. Draw....Write... Simply High resolution and report rate for outstanding accuracy Precise control and 512 levels of pressure sensitivity on the pen Easy scrolling and zooming with finger-sensitive Touch Ring Touch up digital photos, draw by hand, create artwork and paintings

Bamboo 4x5: $109
Bamboo Fun 4x6: $139
Bamboo Fun 6x9: $229

WACOM Intuous3 Tablets

Intuos3 gives you the power to quickly and professionally edit photos and create digital artwork by turning on the full power of Adobe® Photoshop®, Corel® Painter™, and over 100 other leading software applications. Intuos3 tablets now put ExpressKeys™ and Touch Strips right at your fingertips for convenient keyboard shortcuts, scrolling, zooming, brush size control, and more. Wacom's Penabled™ technology gives you the natural feel and superior performance of Wacom's patented cordless and battery-free tablet technology. You'll find that using an Intuos pen, mouse, and tablet gives you more control, comfort, and productivity. Alternating between the comfortable Grip Pen and the ergonomic five-button Intuos3 mouse reduces repetitive motion. It's an easy and natural way to work.

(Mouse is not included in the package)

Intuous3 6 x 8: $419 9x12: $529
Intuous3 12x12: $699 12x19: $899
Intuous3 Wide format 6x11 $539

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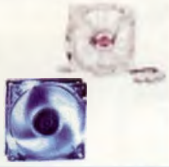
Fax: (03) 9328 1899

Antec 80mm/92mm/120mm Tricool Case Fan

"Antec" (USA) 80, 92 or 120mm Case Fan with LEDS, comes with a 4-pin power connector and a separate signal connector to motherboard.

Available in: green, blue and red

80/92/120mm



$19/19/29

ASUS Silent Knight

- All Copper, Ultra Cooling for Dual-Core CPU, CPU Support: Intel® Core™2 Extreme/ Core™2 Duo/ Pentium® D/ Intel® Pentium® 4 HT/ Celeron® D & AMD Athlon™ 64 X2/ FX (Dual-Core) AMD Athlon™ 64/ Sempron™
- Fan Speed 2,200 rpm ± 10% • Material Cu. Base + Cu. Punched Fins (128 fins) + 6 Heat Pipes

$69

Cooler Master NotePal W1

- World first customized widescreen notebook cooler
- Efficiently reduce the temperature of notebook Enhance notebook stability and durability
- Ergonomic design offers best in comfort and productivity
- Super silent solution for notebook cooling
- All Aluminum curvy design
- Directly consume power from notebook

$49

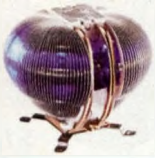
Cooler Master Aquagate Mini R120

CoolerMaster Aquagate R120 includes a CPU water block set, radiator, fan, thermal grease, anti-icing fluid, and water tubing. All of the parts come pre-assembled for convenience and ease of use. Comes with universal retention module to suit most current processors.

$109

Cooler Master Mars

- Compatibles with AMD Socket AM2 and Intel Core 2 Duo
- Embedded silent fan with shockproof desig
- Unique shape design with 2 blue LED light
- Aluminum heat sink with 3 heat pipes and copper base
- Intelligent Fan Speed Controller
- Lead-free Production



$69

Cooler Master Eclipse

- Compatibles with AMD Socket AM2 and Intel 775 CPU
- Aluminum heat sink and copper base with 4 heat pipes
- Gliding fan duct design
- Special turbine fan design
- Intelligent Fan Speed Controller
- Flexible assembling applications
- Lead-free production

$69

Thermaltake iXoft R15ON01 / R15ON02

- Revolutionary Fanless Design for absolute silence 0dBA
- Exclusive HeatShift Technology for ultimate laptop cooling
- Ultra light weight for easy transportation (640g)
- Soft and durable material designed
- Application for all Notebook (12"~17")

$49

Thermaltake Blue Orbll

- Patent Radian Crotched Fin - provides superior air flow
- Copper Core Construction-allows for rapid heat transfer & increased thermal conductivity.
- Silent Blue LED Fan- whispering 17dBA
- Massive Aluminum fin count:140fins - maximizes heat dissipation area.

$49

Thermaltake Big Typhoon VX

- Application for Intel P4 LGA 775, AMD K7, K8
- 6 Heatpipes, transfer the heat quickly
- High density aluminum fins provide more surface area for good heat dissipation
- Copper base solder
- 12 cm silent fan, perform well at low noise, 16dB only

$69

Thermaltake Max Orb

Thermaltake MaxOrb CPU cooler features lightweight aluminium construction and uses six heat-pipes to effectively dissipate heat. It glows blue when turned on and has a fan speed control knob that allows you to control its speed between 1,300 and 2,000 rpm. At the maximum setting the MaxOrb fan can push up to 86.5 CFM of air. Compatible with the latest Intel and AMD processors.

$79

Thermaltake TMG i2

Thermaltake TMG i2 Intel Socket LGA775 CPU cooler features:

- Incredibly Quiet
- Anti-Vibration Design
- PWM Speed Control Function
- Long Life Enter Bearing
- Maximum Cooling
- Easy Installation

$49

Thermaltake BigWater 745 Liquid Cooling System

- Application for Intel P4 LGA775 Intel BTX platform and all AMD K8 series
- Remarkable 120mm Radiator
- Superb Liquid Pump with 400 L/hr
- Exceptional Liquid Tank
- Second-to-none Copper Water Block
- Durable 3/8" Tube

$199

SilverStone SST-FP52B Front Panel 5.25"

SilverStone Front Panel 5.25", BLACK, Aluminium build, Fan Control, Temperature Monitoring, Dual air intake mesh, LCD display

$49

ZALMAN ZM-MFC2 Fan Controller

Zalman ZM-MFC2 Fan Controller, 1 x 4-pin (supports PWM fans), 3 x 3-pin (supports RPM output function), Power consumption and temperature display, Alarm system to notify non-operation of any of the fans, Fits in 5.25" bay drive

$79

ZALMAN VF900-CU VGA

Zalman VF900-Cu LED (Copper) Dual Heatpipe Video Card Cooler with Blue LEDs, 2 Ball bearings, Includes VGA RAM Heatsinks and Fan Speed Controller. Fan Speed: 1350RPM±10% (Silent Mode), 2400RPM±10% (Normal Mode), Noise Level: 18.5±10% (Silent Mode), 25dB±10% (Normal Mode), Heatsink Dimensions - 96(L) x 96(L) x 30(H) mm, Weight - 185g

$49

ZALMAN VF1000 LED VGA Fan

Zalman VF1000 LED (Copper) Video Card Cooler, 2 Ball Bearings with LED, Heatpipe, Fan Speed: 1400~2500RPM (±10%), Noise Level: 18~28dBA (±10%), FAN MATE 2 Fan Controller, Pure Copper Base, Fins and Heatpipes. Covers up to 100W @ 1400RPM, Up to NVIDIA 8800 series compatability, Weight: 380g,

$69

ZALMAN CNPS 7000B-CU

- Compatiable with Intel Pentium 4 (Socket 478) AMD Duron/Athlon/Athlon XP (Socket 462), and Sempron/AMD64 (Socket 754/939/940)
- Pure Copper base material
- 92mm fan inside the FHS
- Adjustable fan speed controller

$49

ZALMAN CNPS 7700-CU

- Compatiable with Intel Pentium4 Socket 775/478, AMD Sempron/AMD64 Socket 754/939/940 CPUs
- Does not generate noise or vibration
- Pure Copper base materials
- large 120mm fan inside the FHS
- Adjustable fan speed controller

$59

ZALMAN CNPS 8000

- Compatible with Slim and LowProfile Computer
- Noiseless and vibration-free operation
- Optimum performance and quick heat dispersion achieved with the use of 4 heatpipes.
- Compatible with Intel Socket 775, AMD Athlon 64 X2 Socket 939 and AMD Sempron/AMD64 Socket 754/939/940
- Ultra quiet 92mm fan.
- FAN MATE 2 included for manual adjustment of fan speed.

$59

ZALMAN CNPS 8700NT

Zalman CNPS8700NT CPU Cooler, Pure Copper base, 2 Ball-bearing, Multi Socket (775/AM2/754/939/940), Ultra Quiet 110mm PWM Fan, 2 Heatpipes, Fan Speed: 1150rpm~2100rpm, Noise Level: 17.5dBA~30dBA, Ultra-thin 0.2mm fins, Slim Tower/Low Profile HTPC Compatible

$69

ZALMAN CNPS 9500 AT

Zalman CNPS9500 AT Ultra Quiet Copper CPU Cooler for Intel LGA 775, 92mm dual ball bearing fan with Automatic Variable Fan Speed Control (PWN Control/Auto Restart). Fan Speed: 1300 ± 30% - 2650RPM ± 10%, Noise Level: 18.0 ± 10% - 27.5dB ± 10%, Fan Operating Voltage: 12V, Dimensions - 85 x 112 x 125 mm, Weight - 530g

$69

ZALMAN CNPS 9500 LED

- 100% copper heatsink with aerodynamically optimized "tunnel"
- Innovative and patented, curved heatpipe
- Optimized heatsink layout
- Ultra quiet 92mm opaque fan with blue LEDs
- 0.2mm ultra-slim fins
- Aerodynamically optimized heatsink
- Compatible with Intel 775 & AMD 939 CPUs

$79

ZALMAN CNPS 9700 LED

Zalman CNPS9700LED CPU Cooler, Intel Socket 775, AMD Socket AM2/754/939/940, 2 Ball-bearing fan, Speed: 1250RPM±10% Silent Mode, 2800RPM±10% Low-Noise Mode; Noise Level: 19.5dB±10% Silent Mode, 35dB±10& Low-Noise Mode;100% copper heat-sink with aerodynamically optimized tunnel design

$89

ZALMAN CNPS 9700NT

Zalman CNPS9700NT CPU Cooler, Intel Socket 775, AMD Socket AM2/754/939/940, 110mm 2 Ball-bearing PWM fan with green LED, Speed: 1250RPM±30% Silent Mode, 2800RPM±10% Low-Noise Mode; Noise Level: 19.5dB±10% Silent Mode, 35dB±10& Low-Noise Mode; copper heat-sink

$99

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Antec SLK1650

Antec SLK1650B Solution Series ATX MiniTower - BLACK, 350W PSU, drive bays: 3x5.25" and 2x3.5" external, 3x3.5" internal, front USB, Prescott P4 ready

$99

Antec Nine Hundred

Antec "Nine Hundred" Gaming Case with Side Window - Black, NO PSU, 9 Drive Bays, Top mounted 200mm exhaust fan, Top USB/ IEEE1394/ Audio

$169

Antec Atlas

Antec 'Atlas' Server Case - BLACK, 550W PSU, 8 drive bays 4 x 3.5" internal & 4 x 5.25" external, Front USB/IEEE1394 & Audio ports, ATX

$199

Antec P182

Antec P182 "Performance One" Black ATX Mid Tower - NO PSU, 11 Drive Bays, up to 5 Configurable Fans, Front USB/ IEEE1394/ Audio

$199

Antec P182SE

Antec P182SE "Performance One" Silver ATX Mid Tower - NO PSU, Mirrored panels, 11 Drive Bays, up to 5 Configurable Fans, Front USB, IEE1394 & Audio

$279

Antec P190

Antec P190 "Performance One" Black E-ATX Tower - 1200W Neo-Link Dual PSU, up to 5 Configurable Fans, Front USB, IEEE1394 & Audio

$529

Antec Minuet 300

Antec 'Minuet II' Slimline Case - Piano Black/Chrome, 300W PSU, 3 Bay drives, Top Panel with Vents, Front USB/ IEEE1394/Audio, MicroATX

$119

Antec NSK1380

Antec NSK1380 MicroATX Case - BLACK/SILVER, 350W PSU, drive bays: 1x5.25" external, 3x3.5" internal, front USB/Audio In & Out

$139

Antec NSK2480/2480B

Antec NSK2480 MicroATX Desktop - Black or Silver, EarthWatts 380W PSU, Drive Bays: 2x5.25" External, 2x3.5" Internal, 2xUSB

$139

Antec NSK3480

Antec NSK3480 Solution Series MicroATX Tower - Black with Silver Bezel, Antec EA 380W PSU, Drive Bays: 2x5.25" & 1x3.5" Ext, 1x3.5" Int, 2xUSB

$129

Antec NSK4480B

Antec NSK4480B Solution Series ATX MiniTower - Black, EarthWatts 380W PSU, Drive Bays: 3x5.25" & 2x3.5" External, 3x3.5" Internal, 2 x USB

$109

Antec NSK6580

Antec NSK6580 Solution Series ATX MiniTower - Black/Silver, EarthWatts 430W PSU, Drive Bays: 3x5.25" & 1x3.5" External, 5x3.5" Internal, 2xUSB

$139

Antec Solo

Antec 'SOLO' ATX MiniTower - Black/Silver, NO PSU, Piano Black Finishing, Drive Bays: 4x5.25" Ext, 4x3.5" Int, front USB/Firewire/Audio In & Out

$129

Antec SonataIII

Antec 'Sonata III' MiniTower Case - Piano Black, EarthWatts 500W PSU, 9 Drive Bays, Washable Air Filter, Front USB/ eSATA/Audio, ATX

$189

Antec Sonata Designer

Antec 'Sonata Designer' ATX MiniTower Case - Icelandic Blue, EarthWatts 500W PSU

$219

Antec Sonata Plus

Antec 'Sonata Plus' ATX MiniTower Case - Piano Black and Silver, NeoPower 550W PSU

$289

Antec Titan650

Antec Titan650 Black Server Case, TruePower Trio 650W PSU, 10 drive bays 6x3.5" internal & 4 x 5.25" external, up to Extended ATX form factor

$269

Antec Fusion

Antec 'Fusion' Desktop Case - Black or Silver, VFD, 430W PSU, drive bays: 1x5.25" external & 2x3.5" internal, front USB/IEEE1394/Audio, mATX

$259

Antec 4U22A Rackmount

black color, NO power supply, fits 12"x13" motherboard, lockable front cover Size: 335 x 570 x 700 mm

$189

Antec Take3 Rackmount

3U Antec 'TAKE3' Quiet Rackmount Chassis, drive bays: 2 x 5.25" + 1 x 3.5" External, 3 x 3.5" Internal, 7 Expansion Slots, 450W PSU

$369

Cooler Master Elite 340

Tool-Free mechanical design, Built-in washable front air filter, MicroATX, 420W PSU

$79

Cooler Master Elite 330/333

Tool-Free mechanical design, Built-in washable front air filter, 120mm fans in front and rear, 420W PSU

$89

Cooler Master CenturionV

- Front and side venting holes
- Screw-less locking
- Top I/O panel
- 430W PSU
- 120mm Case fan

$115

Cooler Master Centurion 534

- Superior Airflow
- Tool-free Design
- 120mm Case fan
- 460W PSU

$125

Cooler Master Mystique 631

CoolerMaster Mystique 631 Aluminum Case, Black or Silver color, no Power supply

$129

Cooler Master Mystique 632

Aluminum alloy, meshed front panel design; 120mm fans in the front and rear; Screw-less design; Built-in washable front air filter

$169

Cooler Master COSMOS 1000

Cooler Master RC-1000-KSN1 Cosmos Full Tower Case, NO PSU

$289

Cooler Master Stacker 831

Value-added functionality, Unmatchable upgrade ability, Superior Airflow

Available in: Silver or Black

$249

Cooler Master Stacker 832

Value-added functionality, Unmatchable upgrade ability, Superior Airflow

Availabl Black

$309

Cooler Master Stacker 830 Evo

Value-added functionality, Unmatchable upgrade ability, Superior Airflow, SLI Ready

Available in: Silver or Black

$309

Cooler Master CM690

Cooler Master RC-690-KKN1 CM690 ATX Case, Black, NO PSU

$109

Cooler Master ITower930

front hot swap module; Overall fixed tool-free design; Superior Thermal Solution; Durable 0.8mm cold rolled steel construction; Key lock and intrusion switch design

$189

SilverStone LC13

SilverStone LC13 ATX Desktop Case - Aluminium build, drive bays:2x5.25"/2x3.5"external, 2x3.5"internal, Front USB2.0/ IEEE1394/Audio/MIC, NO PSU

Available in: Black or Silver

$139

SilverStone LC17

SilverStone LC17 ATX Desktop Case - Aluminium build, drive bays:2x5.25"/1x3.5"ext, 6x3.5"int, Front USB2.0/ IEEE1394/Audio/MIC, NO PSU

Available in: Black or Silver

$119

SilverStone LC16M

SilverStone LC16M Aluminium build. VFD, Front USB2.0/ IEEE1394/Audio/MIC, IR Remote, iMon, NO PSU

Available in: Black or Silver

$259

SilverStone LC16B-MR

Silverstone LC16 Black ATX HTCP with 52-in-1 Card Reader - Aluminium Front Panel, SECC body, VFD, IR, Remote Control, 2 x 80mm Fans, no PSU

Available in: Black or Silver

$289

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Thermaltake

Soprano VB1430

- High Efficient ventilation
- Tool-Free when installing 5.25" & 3.5" device
- Dual USB 2.0, IEEE 1394, Audio & Speaker ports

$129/129

Thermaltake

Soprano DX VE7000

Thermaltake Soprano DX Steel with Window Black or Aluminium, NO Power Supply

$179/209

Thermaltake

Armor VA8000

Armor, Optimized Thermal Management, offers a great amount of space: Front Accessible 10 x 5.25", 2 x 3.5" and Internal 6 x3.5"

$219/269

FOXCONN

TSAA-861

Foxconn TSAA-861 ATX MidiTower - Black/Silver, 350W PSU, drive bays: 4x5.25" & 2x3.5" ext, 4x3.5" int, front USB+Audio+Mic

$69

GIGABYTE

GZ-FSCA1 ANB Aurora

- Aluminum body, high-end
- Supports all liquid cooling sys
- Dual security lock
- Black or Aluminium

$159/179

GIGABYTE

GZ-FA1CA ASB Aurora 570

- Aluminum body, high-end
- Supports all liquid cooling sys
- Dual security lock
- Black or Aluminium

$199/219

ASUS

TA881

- Superior Thermal Solution
- Friendly Mechanical Design
- Flexible Expansion Choices
- 350W Power Supply

$69

ASUS

TA982

- Excellent Cooling Systems
- Flexible Configuration
- Quick and safety installation and maintenance
- 350W Power Supply

$79

ZALMAN

HD160

Zalman HD160 HTPC ATX case, VFD display, Remote Controller, 2 x USB, 1 x IEEE1394, 2 x 80mm rear exhaust fans, 17-in-1 card reader, NO PSU

$379

ASUS

P3-P5G33

ASUS P3-P5G33 Barebone System (No CPU, RAM and HDD), Intel G33, FSB 1333Hz, Dual DDR2 800, Int. VGA, PCI-E x16, SATAII, 8-ch, 220W PSU

$269

Shuttle SG33G5

Shuttle SG33G5, LGA775, G33, FSB1333, Dual DDR2 800, PCI Express x16, Int VGA with HDMI/HDCP, SATAII, eSATA, GbE LAN, USB2.0, 8Ch Audio, 250W PSU

$409

Shuttle

SP35P2-Pro

Shuttle SP35P2 PRO, Black, LGA775, P35, FSB1333, DDR2 800/1066(OC), PCI Express x16, SATAII, eSATA, GbE LAN, USB2.0, 8ch Audio, 400W PSU

$589

Antec

EarthWatts

"Antec" EarthWatts Power Supply, 80 PLUS certified , 80mm low noise cooling fan, Dual 12V outputs, 1 x PCI-Express, 4 x SATA, 6 x IDE

380W $79
430W $89
500W $109

Antec

TruePower Trio

Antec TruePower Trio PSU, 120mm fan, Dual PCI-E & 4 SATA Connectors

430W $99
550W $139
650W $159

Antec

NeoPower

Antec" NeoPower 2.2 ATX Power Supply, Noise Level less 18dBA, PCI-E Graphics Card Connector, SATA Connectors

500W $149
550W $169
650W $189

Antec

TruePower Quattro

Antec" TruePower Quattro ATX & EPS 12V Power Supply, Modular Cables, Four 12V Rails, 80Plus Certified, 2x8-pin PCI-E, 2x6-pin PCIE

850W $299
1000W $329

SilverStone

ST65Z / 75Z

SilverStone 650 or 750 Watt Power Supply, SLI ready, Titanium black, 80mm fan, Dual PCI-E 6pin / Four SATA connectors, Active PFC

650W $169
750W $219

ZALMAN

Noiseless PSU

- ATX12V PSU, supporting Intel Pentium 4 and AMD CPUs
- Come with SATA connectors

460W $109
600W $169
750W $219

Coolermaster

eXtreme

Coolermaster eXtreme PSU, enhances system reliability by preventing mains abnormal supply from spikes and surges.

500W $79
550W $89
600W $99
650W $109

Coolermaster

Real Power Modularized

Real Power M is specially designed for NVIDIA's next generation high-end Graphic Cards.

620W $199
700W $229
1000W $339

Coolermaster

Real Power Pro

- First six +12V rails for better power distribution in Quad-SLI and 2 ways server
- Four 6 pin PCI-E connector
- Ultra-silent operation with intelligent 135mm fan speed control (< 16dBA)

550W $139
850W $259
1000W $309

CORSAIR

HX Modular

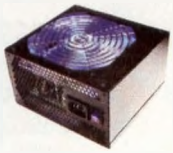
Corsair" HX-520/ HX620 ATX Modular Power Supply, 120mm fan, Dual PCI-E Graphics Card Connector, 4 SATA Connectors, Universal AC input 90~264V

HX-520 $159
HX-620 $189

OCZ

GameXStream

OCZ SLI-Ready GameXStream are designed for the demanding computing environments of PC Enthusiasts



850W $259
1010W $339

Thermaltake

ToughPower

- SLI, Cross-Fire, and Dual Core CPU ready
- Extremely good voltage regulation

600W $169
750W $229
850W $279

APC

CS/ES Series

APC Back UPS CS or ES are reliable power protection for office and home office computers. It has USB support 500VA/300 watts capacity, USB compatible, hot swap batteries, RJ-11 Modem/Fax/DSL protection, unattended shutdown, also includes s/w and USB cable.

CS500 $139
ES550 $159
ES700 $199

APC

Back-UPS RS

APRC RS Series, High Performance Battery Backup & Protection for Business Computers. Up to six battery backup outlets with automatic voltage regulation (AVR) enable you to work through even the most frequent brownouts and power sags, keeping 75/90/110 minutes of battery power for when you need it most.

1000VA $459
1500VA $559

APC

Smart-UPS

APC Smart-UPS 1000VA Extended Run USB, 750VA/600W or 1000VA/800W, Input 230V/ Output 230V, Interface Port DB-9 RS-232, Smart Slot, USB, Extended runtime model

750VA $769
1000VA $969

POWERWARE 3105

UPS Series

The compact Powerware 3105 UPS makes it affordable for the smallest offices and home offices to have surge suppression and backup power to protect PCs, peripherals, fax machines, and telephone equipment.

500VA $89
700VA $109

POWERWARE 5110

UPS Series

The Powerware 5110 UPS delivers the ultimate in power quality, constantly safeguarding your equipment from power outages, surges, sags, brownouts, and over-voltage conditions. Typical Backup Time at full load: 3 minutes, at half load.

500VA $99
700VA $129
1000VA $199
1500VA $269

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CPL IT GUIDE

January 2008

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ASUS 256MB 7200GS HTD PE

Chipset NVIDIA GeForce 7200 GS
Memory 256MB, 64bits DDR2
Bus PCI-Express
TV out, DVI Port, Twin View

$49

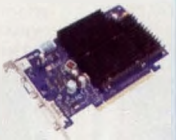
ASUS 256MB 8400GS PCIE

Chipset NVIDIA GeForce 8400 GS
Memory 256MB, 64bits DDR2
Bus PCI-Express
TV out, DVI Port, Twin View

$59

ASUS 512MB 8500GT Silent PCIE

Chipset NVIDIA GeForce 8500 GT
Memory 512MB, 128bits DDR2
Bus PCI Express 16X
TV out, DVI Port, Twin View



$119

ASUS 512MB 8600GT PCIE

Chipset NVIDIA GeForce 8600 GT
Memory 512MB, 128bits DDR3
Bus PCI Express 16X
TV out, DVI Port, Twin View

$159

ASUS 512MB 8600GT Silent PCIE

Chipset NVIDIA GeForce 8600 GT
Memory 512MB, 128bits DDR3
Bus PCI Express 16X
TV out, DVI Port, Twin View

$199

ASUS 256MB 8600GTS Slient PCIE

Chipset NVIDIA GeForce 8600 GTS
Memory 256MB, 128bits DDR3
Bus PCI Express 16X
TV out, DVI Port, Twin View

$229

ASUS 8800GTS HTDP PCIE

Chipset NVIDIA GeForce 8800GTS
Memory 320/640MB, 320bits DDR3
Bus PCI Express 16X
TV out, Dual DVI Port, HDTV

320MB $349
640MB $489

ASUS 512MB 8800GT HTDP PCIE

Chipset NVIDIA GeForce 8800GT
Memory 512MB, 320bits DDR3
Bus PCI Express 16X
TV out, Dual DVI Port, HDTV

$429

ASUS 256MB 2400Pro PCIE

Chipset ATI Radeon 2400Pro
Memory 256MB, 64bits DDR2
Bus PCI-Express 16x
TV out, DVI Port

$59

ASUS 256MB 2400XT PCIE

Chipset ATI Radeon 2400XT
Memory 256MB, 64bits DDR3
Bus PCI-Express 16x
TV out, DVI Port

$89

ASUS 256MB 2600Pro PCIE

Chipset ATI Radeon 2600Pro
Memory 256MB, 128bits DDR2
Bus PCI-Express 16x
TV out, DVI Port

$109

ASUS 256MB 2600XT PCIE

Chipset ATI Radeon 2600XT
Memory 256MB, 128bits DDR3
Bus PCI-Express 16x
TV out, DVI Port

$129

GIGABYTE 256MB 8400GS PCIE

Chipset NVIDIA GeForce 8400 GS
Memory 256MB, 64bits DDR2
Bus PCI-Express
TV out, DVI Port, Twin View

$69

GIGABYTE 8500GT PCIE

Chipset NVIDIA GeForce 8500GT
Memory 256/512MB, 128bits DDR2
Bus PCI-Express 16x
TV out, Dual DVI Port

256MB $99
512MB $109

GIGABYTE 8600GT PCIE

Chipset NVIDIA GeForce 8600GT
Memory 256/512MB, 128bits DDR3
Bus PCI-Express 16x
TV out, Dual DVI Port

256MB $139
512MB $149

GIGABYTE 256MB 8600GTS PCIE

Chipset NVIDIA GeForce 8600GTS
Memory 256MB, 128bits DDR3
Bus PCI-Express 16x
TV out, Dual DVI Port

$229

GIGABYTE 8800GTS PCIE

Chipset NVIDIA GeForce 8800GTS
Memory 320/640MB, 320bits DDR3
Bus PCI Express 16X
TV out, Dual DVI Port, HDTV

320MB $349
640MB $489

GIGABYTE 512M 8800GT PCIE

Chipset NVIDIA GeForce 8800GT
Memory 512MB, 320bits DDR3
Bus PCI Express 16X
TV out, Dual DVI Port, HDTV

$389

GIGABYTE 256MB 2400Pro PCIE

Chipset ATI Radeon 2400Pro
Memory 256MB, 64bits DDR2
Bus PCI-Express 16x
TV out, DVI Port

$59

GIGABYTE 256MB 2400XT PCIE

Chipset ATI Radeon 2400XT
Memory 256MB, 64bits DDR3
Bus PCI-Express 16x
TV out, DVI Port

$89

GIGABYTE 512MB 2600Pro PCIE

Chipset ATI Radeon 2600Pro
Memory 512MB, 128bits DDR2
Bus PCI-Express 16x
TV out, DVI Port

$119

GIGABYTE 256MB 2600XT PCIE

Chipset ATI Radeon 2600XT
Memory 256MB, 128bits DDR4
Bus PCI-Express 16x
TV out, DVI Port

$149

XFX 256MB 8600GT PCIE XXX

Chipset NVIDIA GeForce 8600GT
Memory 256MB, 128bits DDR3
Bus PCI-Express 16x
TV out, Dual DVI Port
XXX Version
Clock Speed: 680Mhz

$189

XFX 256MB 8600GTS PCIE

Chipset NVIDIA GeForce 8600GTS
Memory 256MB, 128bits DDR3
Bus PCI-Express 16x
TV out, Dual DVI Port
Clock Speed: 675Mhz

$219

XFX 8800GTS PCIE

Chipset NVIDIA GeForce 8800GTS
Memory 320/640MB, 320bits DDR3
Bus PCI-Express 16x
Dual DVI, HDTV
Clock Speed: 500Mhz

320MB $329
640MB $489

XFX 512MB 8800GT PCIE

Chipset NVIDIA GeForce 8800GT
Memory 512MB, 320bits DDR3
Bus PCI-Express 16x
Dual DVI, HDTV
Clock Speed: 600Mhz

$389

XFX 512MB 8800GT PCIE XXX

Chipset NVIDIA GeForce 8800GT
Memory 512MB, 320bits DDR3
Bus PCI-Express 16x
Dual DVI, HDTV
Clock Speed: 670Mhz

$449

XFX 768MB 8800GTX PCIE XXX

Chipset NVIDIA GeForce 8800GTX
Memory 768MB, 384bits DDR3
Bus PCI-Express 16x
Dual DVI, HDTV
Clock Speed: 630Mhz

$869

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Leadtek 256MB 7600GT TDH AGP

Chipset NVIDIA GeForece 7600GT
Memory 256MB, 128bits DDR3
Bus AGP 8X
Dual-Link DVI, HDTV

$139

Leadtek 512MB 8600GT PCIE

Chipset NVIDIA GeForce 8600 GT
Memory 512MB, 128bits DDR3
Bus PCI Express 16X
TV out, DVI Port, Twin View

$149

Leadtek 512MB 8800GT PCIE

Chipset NVIDIA GeForce 8800GT
Memory 512MB, 320bits DDR3
Bus PCI Express 16X
TV out, Dual DVI Port, HDTV

$389

Leadtek 640MB 8800GTS TDH PCI E

Chipset NVIDIA GeForce 8800GTS
Memory 640MB, 320bits DDR3
Bus PCI Express 16X
TV out, Dual DVI Port, HDTV

$469

Leadtek 128MB Quadro FX560 PCI E

Chipset NVIDIA Quadro FX 560
Memory 128MB, 128bits DDRIII
Bus PCI Express 16X
DVI-DL+DVI-SL+HDTV

$369

Leadtek 256MB Quadro FX1500 PCI E

Chipset NVIDIA QuadroFX1500
Memory 256MB, DDRIII
Bus PCI Express 16X
Dual DVI, Dual-Link. HDTV Out

$769

Leadtek TV2000 XP

WinFast TV2000 XP is your best personal digital video recorder with video editing & authoring. It is the most effective way of turning your PC into a high definition TV and FM entertainment center.

RM $39
Expert $59

Leadtek DTV Dongle

Portable DVB-T USB2.0 TV Box:
- Picture-In-Picture (PIP), POP, PAP
- Time-Shifting
- Capture format profile
- Scheduled Power-up Recording
- All-in-one Control Panel

$59

Leadtek DTV1000 T

Digital Video Broadcasting Terrestrial TV Card:
- Picture-In-Picture (PIP), Picture-On-Picture (POP)
- Exclusive M.V.P mode
- Time-Shifting
- Powerful schedule
- Capture format profile
- All-in-one control panel

$59

Leadtek DTV2000 H

With winfast DTV2000 Hybrid PCI TV Tuner, You can watch analog or high quality digital TV, listen to FM radio or DVB-T radio and record videos on your PC!

$89

Leadtek DV2000

- Watch TV in Stereo/SAP & Listen to FM in Stereo .
- Provides 3 1394 ports for DV camcorder and other 1394 devices
- Convert your DV and Home Videos to VCD/DVD Directly .

$89

Leadtek PVR3000 Deluxe

WinFast PVR3000 Deluxe an enhanced PCI 3DY/C Hardware MPEGI/II encoder TV card, allows you to enjoy live full-band antenna TV or cable TV programs on your PC.

$129

COMPRO VideoMate U300

Compro VideoMate U300 DVB-T Stick is a thumb size digital TV tuner box with remote control. It is easy to put into your pocket or computer bag and plug it in anywhere at anytime to receive high quality free-to-air digital terrestrial TV broadcast on your desktop or laptop PC.

$69

COMPRO VideoMate T750

A dual PCI DVB-T and analog TV/FM tuner card, which brings HQ digital terrestrial TV and universal analog TV/FM broadcasts to your PC and turns it into a home entertainment center by bringing digital/analog TV viewing, video/audio capturing, and personal digital video recording capabilities.

$129

AVerMedia AVerTV Hybrid+FM

AveMedia AVerTV Hybrid + FM PCI or Cardbus, Watch Analog TV (PAL) or High Quality Digital Terrestrial TV (DVB-T) programs and FM Radio broadcasts on PC or Laptop.

PCI / Cardbus

$99/109

AVerMedia AVerMedia TV Hybrid + FM Volar

AVerMedia TV Hybrid + FM Volar, USB 2.0 Pen Drive, Watch TV on PC/Notebook. 75 Ohm Coaxial TV Antenna/Composite/S-Video/FM, Remote & FM Antenna

$109

ASUS My Cinema U3000Mini

- Watch and record digital TV programs (DVB-T free-to-air) on PC or notebook
- Time Shifting function for temporary leave
- Manually schedule recording
- One-touch recording from EPG
- Vista Premium / Vista Basic / XP / MCE supported

$39

Fusion Pro HDTV DVB-T Hybrid

- Watch both digital & analogue TV on a PC.
- Record TV Programs to HDD as DVD/MPEG2 Format. • Scheduled recording from Stand-by mode. • Pause and replay live TV shows. • Low profile form factor for slim PC

$149

Fusion Dual 4 Dual Digital

- Record TV to HDD, Scheduled recording & Time Shif. • 2 Hi-Def Digital TV tuners, Low Profile PCI Card. • Watch OneChannel While Recording Another.
- Full function MCE style infrared remote control.

$169

Fusion Nano USB HDTV

Highly Portable
- Supports any notebook as well as desktops
- Bus-powered
- Small form-factor and fancy design fits into your pocket

High resolution, crystal clear picture quality
Remote Control Included

$109

GIGABYTE GT-U7000-RH

Gigabyte Hybrid TV Card- • Microsoft® MCE certified • Supports Digital TV (DVB-T) • Supports Global Analog TV system • FM radio receiver • TV Time Shift
• Video capture function • Instant or scheduled TV program recording scheduled TV program recording

$79

GIGABYTE GT-U8000-RH

• Supports Digital TV (DVB-T) • Supports Analog TV • Mobility - Good reception when moving at high speed • Total thermal solution increases stability and durability • Remote control included • Instant or scheduled TV program recording

$89

Hauppauge HVR-1100MCE Digital HDTV

The Hauppauge HVR1100-MCE is specially designed for use and integration with MS Windows Media Centre. It provides sharp, clear viewing and capture of free-to-air digital SD and HD television*, FM radio or DVB-T radio.

$129

Hauppauge HVR-1300MCE Digital HDTV

Internal PCI digital or analogue TV receiver for Windows® XP Media Center Edition. Supports Australian Digital SD/HD TV Built-in hi-quality hardware MPEG encoder.

$179

Hauppauge Nova-T 500MCE PCI Dual Digital

- True single PCI slot / dual tuner solution.
- State-of-the-art technology.
- Designed for Windows XP Media Center Edition.

$199

PINNACLE PCTV 310i

• Watch & record HDTV or analogue TV on your PC • Listen & Record FM Radio, DAB Digital Radio, Internet Radio • Timeshifting for pausing & replaying live TV • Record to MPEG-1, MPEG-2, or direct to DVD • Channel Name Recognition • Teletext

$169

PINNACLE Studio Ultimate

• Pinnacle Studio Ultimate Software Version 11 • Capture from Camera, WebCam or Capture Card • Imports Video MPEG-1 MPEG-2, AVI. • Outputs MPEG-1, MPEG-2, AVI, Real Video 8 & WMS.

$249

PINNACLE Studio Movie-Board 500 PCI

Pinnacle Studio MovieBoard is the versatile solution for people who want to make great home movies without limitation, offering flexible video capture capabilities with rich editing tools.

$199

CPL IT GUIDE

January 2008

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Fax: (03) 9328 1899

CREATIVE Audigy Value

The Upgrade Solution for Basic Motherboard Audio to High Quality 24-bit, 7.1 Audio Delivering audio quality of up to 24-bit / 96KHz, 100dB SNR clarity and 7.1 surround sound, Sound Blaster Audigy Value is the ideal upgrade to high quality audio from basic motherboard audio.

$49

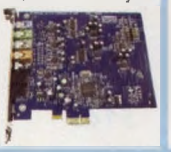
CREATIVE X-Fi Xtreme Audio

- Restore the details and vibrance that your music lost during MP3 compression
- Enjoy all your music and movies in surround sound on virtually any speaker system or headphones

$99

CREATIVE X-Fi Xtreme Audio PCIE

PCI-E Creative Sound Blaster X-Fi Xtreme Audio Card, PCI Express, X-Fi 24-bit Crystalizer, X-Fi CMSS-3D Surround, EAX Advanced HD



$99

CREATIVE X-Fi Xtreme Gamer

The Sound Blaster® X-Fi™ XtremeGamer sound card delivers faster audio performance and intense, realistic sound in all your games. Headphone surround sound is better too.

$159

CREATIVE X-Fi Xtreme Gamer Fatal1ty Pro

Creative Sound Blaster X-Fi XtremeGamer Fatal1ty Pro - 7.1 Channel, 24-Bit Crystalizer/SoundFont, 64MB X-RAM, EAX 5.0

$189

CREATIVE X-Fi Platinum Fatal1ty

Creative Sound Blaster X-Fi Platinum Fatal1ty Champion with I/O Drive & IR Remote - 7.1Ch, 24-Bit Crystallizer/SoundFont, EAX5.0, 64MB X-RAM

$299

CREATIVE X-Fi Elite Pro

Sound Blaster® X-Fi™ Elite Pro is the "top of the line" answer to those looking for the very best in audio creation and home entertainment - with all the power and features of the entire Creative Sound Blaster X-Fi family of sound cards bundled into one ultimate solution!

$439

CREATIVE X-Fi Xtreme Audio Notebook

Creative Sound Blaster X-Fi Xtreme Audio Notebook, ExpressCard interface, X-Fi Crystalizer, X-Fi CMSS-3D

$149

ALTEC LANSING FX6021

Featuring two ultra-slim satellites with a total of 12 one-inch neodymium full-range micro drivers, LaserSound technology enables the system to deliver crisp, clean, full-volume sound.

$229

ALTEC LANSING MX5021

Featuring a polished, piano-quality black finish, MX5021 delivers big time in a powered audio system that not only sounds great - but looks terrific . Wireless Remote Control Pod-Control of bass, treble and master volume levels is at your fingertips.

$179

ALTEC LANSING VS2421

The Altec Lansing VS2421 is an incredibly compact, value-priced system that gets its powerful, full-spectrum sound from custom-engineered, dual 2.5" speakers, plus a thin yet powerful 5 25" subwoofer that fits easily under your desk.

$79

CREATIVE Gigaworks T20

Featuring quality components such as cloth dome tweeters, stylized woven glass fibre cone drivers and BasXPort™ technology, the GigaWorks T20 is set to deliver unparalleled performance that will change your perception of desktop speakers.

$109

CREATIVE Inspire M2600

The Inspire M2600 delivers natural and accurate tonal quality, the formula for great sounding audio system at an amazing price. With the wired remote control, add a touch of convenience in your hand!

$49

CREATIVE Inspire 5200

Taking advantage of a front center speaker, This 5.1 system provides the most immersive PC entertainment with direct, in-your-face action in EAX® and DirectSound® 3D games and DVD movies.

$69

CREATIVE Inspire M5300

Creative Inspire® M5300 speaker system is designed to complement any room, 5.1 add-in or built-in sound card. Great power, Awesome realism; Distinctive design, Tiny footprint; Fingertip control.

$79

CREATIVE Inspire T6060

Unparalleled Style and Power for Exhilarating 5.1 Games and Movies, Creative Inspire T6060 has: Two-way satellite speaker design: Wood subwoofer; Powerful center speaker; Flared port; Small footprint; Wired remote control

$99

CREATIVE Inspire T7900

Creative Inspire T7900 BLACK Speakers, 7.1 ch, 20W RMS Center Speaker, 6 x Satellite Speakers 8W RMS, 24W RMS Subwoofer, Wired Remote Control

$139

CREATIVE SBS350

Creative SBS350 BLACK Speakers, 2.1 channel, Satellite speakers: 3W RMS x 2, Subwoofer: 6W RMS, Frequency response: 40Hz - 20KHz, Wired remote with LED indicator controls power and volume. Magnetically-shielded speakers can be placed close to monitor.

$39

Logitech V20

The Logitech® V20 USB Notebook Speakers offer a convenient, high-quality speaker system for your laptop with rich, full sound and deep bass--all in a lightweight, portable design.

$69

Logitech Pure-Fi Anywhere

The Pure-Fi Anywhere™ uses a unique combination of speaker drivers to deliver clear sound with maximum bass and minimal distortion. Its compact size and long battery life make it the ideal companion to your iPod.

$149

Logitech R20

The Logitech R-20 2.1 speakers enhance your games, movies, and music. They offer dynamic audio in a sleek, compact design. Their ported wood subwoofer displaces more air for deep bass.

$29

Logitech X140

Logitech's X-140 stereo speakers feature dynamic, real-time bass equalisation to maximise low frequency response while minimising distortion.

$39

Logitech X-240

Logitech X-240 2.1 speakers features: Integrated Stowaway Cradle, Control Pod, Stereo Headphone Jack, High-excursion Drivers & Real-time Bass Equalization

$59

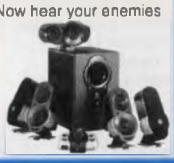
Logitech X540

The X-540 5.1 speakers use FDD2™ (Frequency Directed Dual Driver) technology to produce a uniform soundfield anywhere in the room.

$99

Logitech G51

Bring your games to life with 360-degree surround sound. Your games are meant to be experienced in surround sound. Now hear your enemies sneaking up behind you, and listen for action in every direction.



$209

Logitech Z-2300

The Z-2300 pound out powerful distortion-free bass from a 20 cm (8") long-throw subwoofer. Polished aluminium phase plug drivers combine the clarity of a tweeter with the richness of a separate mid-range for an all-encompassing listening experience.

$169

Logitech Z4

The Z-4 features a modern audio inspired design with high-gloss and durable cast metal finish. Award-winning pressure driver subwoofer technology delivers unparalleled distortion-free bass and the sleek satellites feature one active and two pressure drivers.

$109

Logitech Z5500D

For the ultimate entertainment experience: Logitech's THX-certified, 500 watt Z-5500 Digital 5.1 speaker system delivers high-fidelity digital sound for DVD players, PCs, video game consoles, and more.

$379

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Logitech Quick-Cam Messenger

- Add live video to MSN® Messenger
- Capture sound with the built-in microphone
- E-mail videos and photos easily
- Broadcast live video, email video and photos, and create web albums

$29

Logitech Quick-Cam IM

- Send real-time video to anyone on your IM list... no camera necessary on receiving end
- Make live video calls to stay connected to long distance friends and family
- Capture videos and photos and e-mail them in one click
- bonus headset

$49

Logitech QuickCam Communicate STX

Logitech QuickCam Communicate, 640 x 480 Video resolution, still image capture at 1.3 Megapixels, Microphone for clear audio and flat-panel clip.

$59

Logitech QuickCam Communicate Deluxe

Logitech QuickCam Communicate Deluxe delivers a superior video calling experience in any light. The 1.3 megapixel sensor and glass lens provide sharp, vibrant video, while RightLight 2 ensures great looking images.

$89

Logitech QuickCam Chat2

- Quality sound
- Bonus imaging editing software included
- Mounts easily with the included universal monitor clip
- Works with the most popular instant messaging applications

$29

Logitech® Quick-Cam® Notebooks

A compact, portable, full-color web camera that's perfect for students, mobile professionals and anyone who wants to stay in touch while on the road. It fits snugly to any notebook computer and does everything you'd expect a webcam to do.

$49

Logitech® Quick-Cam® Deluxe for Notebooks

Small in size but big on performance – Logitech QuickCam Deluxe for Notebooks makes your videos come to life.

- VGA (640x480) resolution
- Connection: USB

$69

Logitech QuickCam Notebooks Pro

- Video capture: Up to 640 x 480 pixels
- Still image capture: Up to 1280 x 960 pixels, 1.3 megapixels
- Frame rate: Up to 30 frames per second
- Integrated Notebook mount
- H-quality VGA CCD sensor
- Built-in microphone

$109

Logitech Quick-Cam Pro 9000

Logitech QuickCam Pro 9000 uses Carl Zeiss® optics with autofocus and 8-megapixel images to capture every detail, even in the most extreme close-ups. RightLight 2 ensures great-looking images, even in poor lighting, while an ultra-wide field of view and automatic face tracking always keep you right in the middle of the action.

$109

Logitech QuickCam Sphere

- Easily add live video to MSN Messenger with fast video 320 x 240 image size
- Works with video-enabled Yahoo/Windows Messenger
- Make live video calls using the built-in microphone
- Always stay in the frame
- Record high quality videos at true 640 x 480 resolution
- Capture 1.3MP photos

$129

Logitech Quick-Cam Ultra Vision

Unsurpassed image quality, with an extra large glass lens.
QuickCam® Ultra Vision uses Logitech RightLight™2 Technology to give you the highest quality image regardless of your lighting, and RightSound™ for clear, echo-free audio. It's video calling that truly is true-to-life.

$129

Microsoft Lifecam Platinum NX-6000 USB

- High Definition 2.0 Megapixel Video
- High Definition 7.6 Megapixel Still Photos
- Built-in Microphone
- Wide-angle Lens
- 3X Digital Zoom
- Optimized for Windows Live Messenger

$109

Microsoft Lifecam VX-3000

- High video quality & High Denition photos
- Pan, tilt, and zoom controls
- Automatically adjusts for low-light conditions for improved video quality
- Built-in unidirectional Mic with acoustic noise cancellation
- Windows Live Call Button

$59

Microsoft Lifecam VX-6000

With Microsoft LifeCam VX-6000 and Windows Live™ Messenger and you can experience instant messaging in a whole new way—communicating with friends and family as if they were in the room with you.

$99

PLANTRONICS Audio 350

Plantronics Audio 350 Headphone Features:

- 40 mm speakers convey rich, resonant stereo with maximum bass response
- Lightweight • Noise-canceling microphone boosts speech recognition accuracy
- QuickAdjust® telescoping, bendable boom assures ideal placement
- Boom stows discreetly when not in use

$35

PLANTRONICS Audio 450

Plantronics Audio 350 Headphone Features:

- Feather-light earbuds deliver full-range stereo sound
- Flex Grip® design provides unshakable fit
- Noise-canceling microphone cuts through background clamor

$45

PLANTRONICS Audio 360

Plantronics Audio 350 Headphone Features:

- Amply cushioned earpods provide maximum comfort
- Closed-ear design delivers total game immersion
- Noise-canceling mic cuts through background clamor
- 40mm speakers dish up maximum bass response

$45

PLANTRONICS Audio 625

The Plantronics Audio 625 lightweight USB brings acoustically accurate comfort to talking, gaming, video conferencing, and unbridled tune jamming. It features a noise-canceling, telescoping microphone to enhance speech accuracy and offers soft, swivel-mounted ear cushions.

$49

PLANTRONICS Audio 500

Plantronics Audio 500 Headphone Features:

- Noise-canceling mic cuts through background clamor
- Soft, swivel-mounted ear cushions ensure hours of comfort
- QuickAdjust™ boom assures ideal microphone placement
- Lightweight, flexible headband

$55

PLANTRONICS Audio 550

Plantronics Audio 550 Headphone Features:

- Lightweight, flexible headband
- Noise-canceling mic cuts through background clamor
- Swivel-mounted, pillow-soft ear cushions deliver soft, acoustic precision
- 40mm stereo speakers dish up maximum bass response
- PerSono™ Software

$109

PLANTRONICS Voyager 510 Bluetooth

Plantronics voyager510 bluetooth Headphone Features: • Extremely lightweight • Noise-canceling microphone • Optional Bluetooth Desk phone Adapter • One-touch call answer/end, last number redial, and voice-activated dialling

$79

Logitech Premium Notebook Headset

Logitech Premium Notebook Headset features a behind-the-head, adjustable design that folds flat for travel. It is perfect for PC calling, Internet voice chat, gaming, and music. It offers high-performance audio, a noise-cancelling microphone, and in-line volume and mute controls.

$69

Logitech Freepulse Wireless

Logitech's FreePulse Wireless Headphones use advanced Bluetooth frequency hopping technology for interference-free, crystal-clear audio. With up to 7 hours of play time and a 10 metre range, you can enjoy your music as you move around freely.

$99

ZALMAN RS6F-USB

Zalman RS6F-USB based 6-speaker Surround Sound Headphones - In-line 5.1 channel USB soundcard, Electro Dynamic Round Type Micro Speaker, Frequency Response - 50Hz ~ 20KHz, Sound Pressure Level 89 dB +/- 3 dB at 1kHz, Windows Vista compatible

$89

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Fax: (03) 9328 1899

D-Link DNS-323
2-Bay Network Storage

- Secure and Share Your Digital Files
- Insert Either One or Two Internal 3.5" SATA Hard Drives without Using Any Tools or Attaching Any Cables
- Protect Your Important Files with Mirrored Hard Drives Using RAID 1 Technology1
- Access Stored Files over The Internet

$289

LINKSYS NAS200
Network Storage System

- Ethernet-connected network appliance with two available SATA hard drive bays
- Share music, video or data files locally and through the Internet with securely managed access by user name or group
- Built-in disk utilities – backup, self test, and scandisk

$199

NETGEAR SC101
Storage Central

- Share your valuable files or keep them private with password protection
- Protect and duplicate your valuable files, automatically
- Supports IDE drives from 80GB to 800GB or more

$139

NETGEAR SC101T
Storage Central Turbo

Netgear SC101T Storage Central Turbo, 10/100/1000 Mbps (Gigabit), Takes up to 2 SATA Hard Drives (not included)

Features:

- Provides mirrored disk storage
- With a Gigabit Ethernet network port
- Accommodates 2 SATA drives.

$229

NETGEAR RND4250

Netgear RND4250-100AJS ReadyNAS NV+ 1TB Gigabit Desktop Network Storage (2 x 500GB Included)

4 Hot Swappable HDD in a small 8 inch high desktop design (2 x 500GB HDD included, 2 open slots for future expansion)

HDD are initialized and system is pre-configured in X-RAID mode for immediate use

$1449

NETGEAR RND4275

ReadyNAS NV+ was designed specifically for home offices, small businesses and workgroups.

Netgear RND4275-100AJS ReadyNAS NV+ 1.5 TB Gigabit Desktop Network Storage (2 x 750GB Included)

$1999

Thecus N2050 Personal Backup Device

Thecus N2050B Black, HDD Bays: 2 x bays of 3.5" SATA HDD, HDD Capacity: 80/120/160/200/250/300/400/500 GB; RAID Levels: Spanning (RAID 0) / Mirroring (RAID 1); External Interfaces: SATA/USB dual mode - USB 2.0 Up to 480 Mbps, eSATA SATA 150, SATA 300; PCI eSATA Card not included, Plug-n-Play

$189

Thecus N2100 Personal Backup Device

Thecus Black or Silver N2100BM/N2100SM, IP Server Storage Appliance with Mediabolic Media Server software, 2x SATA RAID Bays,128MB DDR, 3x USB2.0, Dual GbE LAN

$389

Thecus N3200 Personal Backup Device

Thecus N3200 NAS, Gigabit Ethernet port, Supports 3 x 3.5" SATA HDD up to 750GB, Wireless capable, eSATA, USB, IR Receiver (for future options), LCD Module, Multimedia Support: iTunes Server, Photo Web Server, Web cam, Share Management, File System Administration, Backup, Print Server, Download Manager

$539

Thecus N4100B Personal Backup Device

Thecus Black N4100B PLUS, IP Storage Appliance Barebone, 4x SATA Hot-Swap Bays (RAID0/1/5/JBOD), 128MB DDR, 16MB Flash, Gigabit LAN, 200W ATX PSU

$679

Thecus N5200B Pro NAS Server

Thecus N5200B PRO NAS Server, 5xSATAII Hot-Swap Bays (RAID 0/1/5/6/10/JBOD), 1.5GHz Celeron M CPU, 512MB DDR, 2 x Gigabit LAN

$1099

Thecus N5200BR Pro NAS Server

Thecus N5200BR PRO NAS Server, 5xSATAII Hot-Swap Bays (RAID 0/1/5/6/10/JBOD), 1.5GHz Celeron M CPU, 512MB DDR, 1x GbE LAN, 4 port Gigabit Switch

$1149

D-Link 8ports Switch

D-Link 8-Port 100 or Gigabit Auto-Negotiating Switch, Half-/Full-Duplex, IEEE 802.3x Flow Control, Auto-Polarity Correction, Expansion via MDI Uplink Port, Small & Portable in Size

DES1008D 10/100
DGS1008D Gigabit

DES1008D $49
DGS1008D $89

D-Link 4 / 7port Router
DI-704P / 707P

- Intergrated Firewall
- Shares your Broadband & your printer
- Works with any Ethernet Cable / DSL
- Built in Telstra Cable client
- 4 or 7 10/100 Ethernet ports

704P $69
707P $109

D-Link Wireless Router

- Up to 108Mbps
- Advanced Firewall & Parental Control

DI-524 11/54mbps
DI-624 11/54/108mbps
DI-624S 108mbps

DI-524 $69
DI-624 $99
DI-624S $139

D-Link IP Router

RangeBooster or XtremeN 802.11n For Greater Wireless Coverage Share Internet Access with PCs, Game Consoles, and Media Players Parental Controls to Supervise Internet Activity Firewall Protection for Your Network Backward Compatible with 802.11g and 802.11b Networks

DIR-635 $16
DIR-655 $20

D-Link Wireless PCI

- Fully 802.11b standard compatible
- 256-bit WEP encryption provides you a higher level of security

DWL-G510 11/54mbps
DWL-G520 11/54/108mbps
DWL-G520M 11/54/108mbps mimo

G510 $35
G520 $55
G520M $75

D-Link Wireless PCMCIA

- 802.11g wireless LAN standard
- 32-bit CardBus performance
- Stronger network security with 64/128/256-bit WEP data encryption

DWL-G630 11/54mbps
DWL-G650 11/54/108mbps
DWL-G650M 11/54/108mbps mimo

G630 $35
G650 $55
G650M $75

D-Link ADSL Router
DSL-502T / DSL-504T

- Plug & Play USB/Fast Ethernet Connectivity
- Secure NAT/DHCP Functions
- Telstra Approved
- Supports all major ISP'S

502T 2port
504T 4port

502T $59
504T $79

D-Link ADSL Router
DSL-G604T Wireless

- 4 Port fast Ethernet & 802.11g wireless connectivity
- Supports WPA Security
- Secure NAT/DHCP Functions
- Telstra Approved
- Supports all major ISP'S

$99

D-Link Wireless Lan USB Key

- Up to 108Mbps
- 802.11g, 802.11b Compatible

DWL-G122 11/54mbps
DWL-G132 54/108mbps

DWL-G122 $39
DWL-G132 $59

D-Link Wireless Access Point

- 802.11g wireless LAN standard
- 54 or 108Mbps data rate
- Compatible with 802.11b/b+ standards
- DHCP client/server
- User-selectable WEP data encryption

G700ap $79
G710ap $99
G730ap $89
2100ap $149

D-Link Wireless GamingRouter DGL-4300

- Optimized Gaming Experience with GameFuel Technology
- Up to 108Mbps* 802.11g Wireless
- 4 Gigabit Ethernet Ports
- Customizable Settings for Games and Applications

$219

D-Link DP-G310/G321 Wireless Printer Server

High Speed 802.11g Wireless Printer Server

- Supports USB 2.0
- 802.11g Standard, 802.11b Compatible
- Easy Web-based Set up and Configuration

G310 1 x USB
G321 2xUSB,1xPAR

G310 $159
G321 $209

Notting Hill (Head Office)
7 Howleys Rd., Notting Hill
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Fax: (03) 9562 8781

West Melbourne Branch
130 Dudley St., West Melbourne
Tel: (03) 9223 4288
Fax: (03) 9328 1899

LINKSYS Wireless PCI WMP54G / WMP300N

- 802.11g connectivity for your desktop PC
- Data rates up to 54Mbps or 108Mbps
- Interoperates with 802.11b networks

WMP54G 11/54mbps
300N High Speed 11N

WMP54G $45
WMP300N 115

LINKSYS Wireless PCMCIA WPC54G / WPC300N

- 802.11g networking for your notebook
- Data rates up to 54Mbps or 108Mbps interoperates with 802.11b (11mbps)
- Advanced wireless security: WPA and up to 128-bit encryption

WPC54G $45
WPC300N $115

LINKSYS Wireless Router WRT54G / 54GL / 150N

- 802.11g Access Point
- Data rates up to 54Mbps or 108Mbps interoperable with Wireless-B devices
- Advanced security: WPA, wireless MAC address filtering, powerful SPI firewall

WRT54G $75
WRT54GL $95
WRT150N $129

LINKSYS WAG54G V3 ADSL / Router

- Built-in Router and 4-port Switch to share the Internet
- Built-in Wireless-G (802.11g) Access Point also lets you connect without running wires
- Advanced firewall and security features

$129

LINKSYS WAG325N Wireless-N ADSL2/2+

Linksys WAG325N Wireless Gateway:
- ADSL 2/2+ Gateway with full-featured IP Router. • Blazing fast wireless speeds for high bandwidth. • applications such as video & file sharing. • Support IPSec VPN terminal, up to 5 tunnels. • Advanced SPI Firewall, NAT & DHCP Functions

$189

BILLION 7402R2M ADSL VPN Modem / Router

- VPN with 3DES is up to 3.5 Mbps
- SOHO Firewall Security with DoS Prevention and SPI
- Parental Control with URL Blocking and Packet Filtering
- High-speed Internet Access with ADSL up to 8Mbps

$169

NetComm NB5 ADSL-2 Modem Router

- Supports ADSL and ADSL-2
- Advanced SPI Firewall
- VPN pass-through
- USB and Ethernet ports
- Universal Plug & Play (UPnP)
- Quality of Service (QoS)
- Video Tutorials

$65

NetComm NB5 Plus4/4W ADSL2 Modem Router

- Netcomm ADSL2+ Ethernet Modem/ Router.
- Ethernet Connection.
- NAT Firewall Protection.
- DHCP Support.

NB5 Plus4 $89
NB5 Plus4W $109
NB6 Plus4W $119

NETGEAR Gigabit Switch GS105/ 108/ 116

- 10/100/1000 Mbps Ethernet ports
- High-speed, auto-sensing, full-duplex connections
- Supports PC or Macintosh® O/S
- Silent operation for a peaceful work environment

5/8/16port
$79/139/329

NETGEAR Rackmount Switch JFS516 / JFS524

- 16 / 24ports 10/100 Rackmount Switch
- Plug and Play
- Auto-detects speed and duplex
- Auto Uplink™ Technology makes the right connection
- Rack mount kit included

16 / 24port
$99/139

NETGEAR RP614 4Port Router

- Lightning fast cable/DSL Internet sharing with integrated 4-port switch
- NAT Firewall with VPN pass-through protects against hackers
- Connects up to 253 network users. Parents may restrict and monitor access to inappropriate Web sites

$69

NETGEARAccess Point

- High Speed 54 or 108 Mbps Wireless
- Supports Wireless Bridging and Repeater
- Supports WPA-PSK for Better Wireless Security

WG602 $79
WG102 $169
WPN802 $119

NETGEARPrint Server PS101 / PS121

- Mini printer server 1port parallel or USB
- Share a printer without sharing your PC
- Handles multiple print jobs concurrently
- Easy, Web-based remote management

PS101 Parallel
PS121 USB

PS101 $99
PS121 $119

NETGEARUSB2 Key WG111/WPN111/WN121T

- 54, 108 Mbps or RangeMax standard 802.11g wireless
- Works with all standard 802.11b/g wireless routers and access points
- Compact, pocket-sized design

WG111 $29
WPN111 $49
WN121T $109

NETGEARWireless PCI

- 54Mbps, Rangemax or Rangemax next Wireless PCI to your desktop PC
- 128-bit WEP encryption, upgradeable to Wi-Fi Protected Access (WPA)

WG311 11/54mbps
WPN311 Rangemax
WN311B Rangemax Next

WG311 $29
WPN311 $59
WN311B $109

NETGEARWireless PCMCIA

- 54Mbps, Rangemax or Rangemax next to the notebook • 128-bit WEP encryption, upgradeable to Wi-Fi Protected Access (WPA)

WG511 11/54mbps
WPN511 RangeMax
WN511B RangeMax Next

WG511 $29
WPN511 $59
WN511B $109

NETGEARWGR614 Wireless Router

- Up to 54 Mbps in 2.4 GHz mode
- Share your Cable/DSL Internet connection with or without wires!
- Automatically detects and connects to your ISP
- True Firewall with SPI and NAT

$69

NETGEARWireless Router WPN824

- Up to 1000% more wireless coverage and speed than 802.11g
- RangeMax™ Smart MIMO
- 7 Internal Smart Antennas adapt on the fly to interference
- SmartWizard™ Installation Assistant

$99

NETGEAR Wireless Router WNR834B

Netgear RangeMax Next Wireless Router – up to 270Mbps wireless networking
- Simple and secure way to share your high-speed Internet connection throughout the home • Easy set-up • Maximum performance requires use of RangeMax NEXT Wireless-N adapters

$159

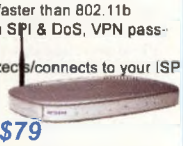
NETGEAR Wireless Router WNR854T

Netgear RangeMax Next Wireless-N Router Gigabit Edition
- Built-in Ultra Fast 4-Port Gigabit Switch
- Surf, email, stream HD video, on-line game, make Internet phone calls–simultaneously
- Easy set-up

$269

NETGEARADSL Router DG834/ DG834G

- Combines modem, router, switch, 802.11g access point, and SPI True Firewall
- Up to 5X or 10X faster than 802.11b
- True Firewall with SPI & DoS, VPN pass-through
- Smart Wizard detects/connects to your ISP



DG834 $79
DG834G $109

NETGEARWireless ADSL Router DG834PN

108Mbps RangeMax ADSL Router
- Up to 500% greater coverage and speed than 802.11g
- Smart MIMO technology with 6 Internal Antennas
- Auto-adjusts to avoid interference on the fly

$179

NETGEAR Wireless ADSL2+ Router DG834N

RangeMax Next ADSL Router:
- Complies with draft 802.11n • Interoperates at 270Mbps • Ensures optimal performance with internal antenna design • Includes built-in ADSL2 + Modem which is capable of WAN data transfer rates of up to 24 Mbps

$249

NETGEARFWG114P Router

- True Firewall with SPI & Intrusion Detection protection
- Built-in 54 Mbps/802.11g Wireless Access Point, Integrated USB Print Server & NAT Routing
- Wi-Fi Protected Access (WPA)

$169

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brother MFC-665CW

Brother MFC-665CW, Colour Inkjet - Flatbed Digital 9 in 1 Multi-Function Centre: Colour Inkjet Printer, Colour Fax, Flatbed Digital Copier, Flatbed Colour Scanner, Photo-Capture Centre, PC-Fax, Speaker Phone, Telephone Hand-set, Answering Machine

$249

brother MFC-7420

The MFC-7420 5-in-1 Laser Multi-Function Centre features a 14.4Kbps fax, 20 pages per minute (ppm) laser printer, and up to 20 copies per-minute convenience copier which combines perform-ance, connectivity and reliability.

$349

brother MFC-7820N

MFC-7820N 5 in 1 Flatbed Digital Multi-Function Centre is a Laser Printer, Laser Fax, Flatbed Colour Scanner, Digital Laser Copier, PC Fax, with Up to 35 sheets ADF, 33,600bps (Fax) Modem, 20 ppm Print Speed, 32MB Standard Memory, & 250 sheets Paper Capacity

$449

brother MFC-8860DN

Mono Laser - Flatbed Digital 5-in-1 Multi-Function with built in Duplex Scanner and Printer • Up to 50 sheets ADF • Up to 28ppm Print • 32MB RAM Standard Memory, expandable to 544MB • Up to 250 sheets Paper Capacity

$789

brother HL-2070 Laser

Brother HL-2070N Workgroup personal laser printer, a quality entry-level 20ppm mono laser printer for the Windows or MAC user which offers a 600 x 2400 dpi print resolution and is network ready.

$199

brother HL-5250DN Workgroup Laser Printer

Brother HL-5250DN features excellent paper handling with its built-in duplex capability for two-sided printing and very expandable paper input capacity.

$379

Canon LBP3200/3300

- Mono laser printer, A4 size
- 18ppm or 21ppm with instant warm up
- Print Resolution: 600 x 600dpi
- Memory: 2MB
- All-in-one cartridge

3200 $169

3300 $319

Canon LBP5000/5200

- Machine Type: Colour laser printer
- LBP5000: Up to 8ppm Black & 8ppm Colour, A4; LBP5200: Up to 19ppm Black & 4ppm Colour, A4
- Resolution: 600 x 600 dpi
- Memory: 8MB

5000 $349

5200 $399

Canon PIXMA iP4500

- Print Resolution : Up to 9600 x 2400 dpi
- Print Engine : InkJet 5-ink
- Print Speed: Black: Up to 31 ppm, Color: Up to 24 ppm
- Standard DVD/CD Printing, Duplex Printing
- direct digital camera printing

$159

Canon PIXMA iP6700D

- LCD Screen : 3.5" (8.9cm) colour LCD, 76,800 pixels and operation panel
- Print Resolution : Up to 9600 x 2400 dpi
- Mono/Color Print Speed: Up to 18/17ppm
- 6 separate ink tanks
- Two Sided Printing
- Interface : USB 2.0 Hi-Speed, Bluetooth

$279

Canon IX4000 A3

- Fast A4 document printing at up to 18 ppm black and 14 ppm colour.
- Print photos with approx. 166 secs. for an A3+ (11"x14" image on 13"x19" photo paper)
- maximum 4800 x 1200 dpi for high-quality photos and documents
- Print borderless photos up to A3+
- 4 individual ink tanks

$479

Canon IX5000 A3

- Fast A4 document printing at up to 25 ppm black and 17 ppm colour
- Print photos with 166 secs. for an A3+ (11"x14" image on 13"x19" photo paper)
- maximum 4800 x 1200 dpi for high-quality photos and document
- Print borderless photos up to A3+
- 4 individual ink tank

$639

Canon MP210

Canon PIXMA MP210 Print/Copy/Scan, 4800dpi, PictBridge. Print in approximately 46 sec for a 6" x 4" photo. Scan at up to 600 x 1200 dpi and copy as fast as 22ppm black and 17ppm colour.

$79

Canon MP470

Canon PIXMA MP470 Print/Copy/Scan, 4800dpi, PictBridge, Card slots, 1.8" LCD, IrDA. Print in approximately 46 sec for a 6" x 4" photo. Scan at up to 2400 x 4800 dpi and copy as fast as 22ppm black and 17ppm colour.

$129

Canon MP520

Canon PIXMA MP520 Print/Copy/Scan, 4800dpi, PictBridge, Card slots, 2" TFT, IrDA, DualPath. Print in approximately 46 sec for a 6" x 4" photo. Scan at up to 2400 x 4800 dpi and copy as fast as 30ppm black and 20ppm colour

$159

Canon MP610

Canon MP610 Print/Copy/Scan, 9600dpi, Film scan,Cd, Duplex, card slots, 3.5" LCD, Dual path. Print in app. 21 sec for a 6" x 4" photo. Advanced features of direct printing from camera, memory cards or mobile phones, direct printing onto a DVD/CD, auto duplex, borderless printing.

$239

Canon MP970

Canon PIXMA MP970Print/Copy/Scan, card slots, 3.5" LCD. Print in app. 35 sec for a 6" x 4" photo. Advanced features of zero warm up time, direct printing from camera, memory cards or mobile phones, direct printing onto a DVD/CD, 35mm film scan, auto duplex, borderless printing.

$359

Canon Canon MP830

- All-in-One colour print, fax, copy & scan
- Print up to 30ppm mono, 24ppm colour
- Super G3 Fax
- 35-page auto duplex ADF
- Two paper trays, Duplex & DVD/CD print
- Max.9600x2400dpi printing
- 2400dpi scanning
- Direct photo printing

$419

Canon MX310

Canon PIXMA MX310 Print/Copy/Scan/Fax, 4800dpi, ADF, PictBridge. Fast printing with 22ppm black and 17ppm colour. Effortless copying, scanning and faxing with the auto document feeder. Scan at up to 1200 x 2400 dpi.

$189

Canon MX700

Canon PIXMA MX700 Print/Copy/Scan/Fax, 4800dpi, Super G3 fax, PictBridge. Fast printing with 30ppm black and 20ppm colour. Effortless copying, scanning and faxing with the auto docu-ment feeder. Scan at up to 2400 x 4800 dpi. 4 individual ink.

$239

Canon MF4140

Canon MF4140 Laser Printer, Fax, Scan-ner, Digital Copier Multifunction:

- Laser copy quality (20cpm, 600 x 600 dpi)
- High print resolution (20 ppm1, 600x600 dpi) • 32MB SDRAM
- CD scanning at 1200 x 2400 dpi
- fax memory of up to 250 pages

$319

Canon MF4150

Canon MF4150, Laser printer, Fax, Scan-ner, and Digital Copier all-in-one:

- Laser copy quality (20cpm, 600 x 600 dpi)
- High print resolution (20 ppm, 600x600 dpi)
- CD scanning at 1200x2400 dpi • fax memory of up to 250 pages • 64MB SDRAM

$439

Canon MF4680

Network A4 Flatbed Digital Copier, Scan-ner, Laser Printer, Fax with ADF. Print up to 20 pages per minute, Scanning Resolu-tion: 9600 x 9600 dpi interpolated, Copying Speed: 20 copies per minute, fax transmis-sion speed: Approx. 3 seconds per page.

$589

Canon Pro9000 A3+

- Resolution: 4800 x 2400 dpi
- Print Speed: Monochrome: approx. 16 ppm, Colour graphics: 15ppm, Photo Paper Pro: approx. 83 seconds
- Paper Size: A3+, A3, A4, A5, B5, B4, LDR+, LDR, Letter, Legal, Envelopes (DL, Com. #10), 5" x 7", 6" x 4"

$879

EPSON CX7300

- 4 Colour Multifunction Inkjet Printer
- Print Speed: 32ppm (black),32ppm (colour)
- Print Resolution : 5760 Optimised dpi
- Scan Speed: Mono up to 5m sec & Colour up to 15m sec/ line at 600dpi • Copy Speed: Black text memo (A4) Approx 30 cpm

$129

EPSON CX8300

- 4 Individual Ink Cartridges, 2.5" LCD
- Print Speed: 32ppm (black),32ppm (colour)
- Print Resolution : 5760 Optimised dpi
- Scan Speed: Mono up to 5m sec & Colour up to 15m sec / line at 600dpi
- Copy Speed: Black text memo (A4) : Approx 30 cpm

$169

EPSON CX6900F

4 Colour Multifunction Inkjet Printer, a powerful and versatile fax, copy, scan and print solution with robust photographic capabilities. • Print Speed : 27ppm(black), 27ppm(colour) • Scan Resolution : 1200 x 2400 dpi • Copy Speed: Black text memo (A4) approx 27 cpm

$199

EPSON AcuLaser C1100 / C1100N

- Resolution is up to 2400dpi
- 25ppm for mono & 5ppm for colour A4
- 250 sheets (face down tray)
- 32MB with EPSON MITech

C1100N: Networking

$309/529

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Fax: (03) 9328 1899

EPSON RX610

6 Colour Multifunction Inkjet Printer, Copier, Scanner:
• Print Speed: Black & Color A4 37ppm Resolution : 5760x1440 Optimised dpi
• Scan Resolution : 1200 x2400 dpi
• Copy Speed Black or Colour A4 : 37cpm
• 2.5" 80dpi LCD Screen

$249

EPSON RX690

6 Colour Multifunction Inkjet Printer, Copier, Scanner:
• Print Speed: Black & Color A4 40ppm Resolution : 5760x1440 Optimised dpi
• Scan Resolution : 1200 x2400 dpi
• Copy Speed Black or Colour A4 : 40cpm
• 2.5" 166dpi LCD Screen

$329

EPSON R290

• 6 Colour Inkjet Printer
• Up to 37 or 38ppm in black or colour A4 text & 12sec per photo in printing
• High resolution 5760 x 1440dpi Optimised
• True BorderFree photo printing up to A4
• CD & DVD Print

$129

EPSON Photo 1410

• Print Resolution :5760 x 1440 Optimised dpi using Resolution Performance Management (RPM) Technology
• Print Speed : Approx. 15 PPM A4 Black & Color
• Print Size: A3+, A3, A4, A5, A6, Letter, B5,

$559

Deskjet 1280 A3

A3+ inkjet with print speed of up to 14 ppm black/11 ppm colour in draft mode, Photoret III or 4800 x 1200-optimised dpi colour, 5,000 pages per month duty cycle, standard input capacity of 150 sheets, 3 paper paths

$329

Laserjet 1022/1022N

• Print: Up to 15 or 19ppm (letter) / 14 or 18 ppm (A4) black
• up to 1200 dpi effective output quality black
• up to 5,000 or 8,000 pages per month duty cycle

1022N: Network

1022 $259

1022N $399

Laserjet P2015

• Prints Up to 26 ppm
• Up to 1200 x 1200 dpi resolution
• up to 15,000 pages per month duty cycle.
• 32MB expandable to 288MB RAM

2015 $449

2015N $569

2015DN $609

Laserjet 1160

Up to 19 ppm (A4) /20 ppm (letter), 133 MHz processor, 10 second first page out, 600 x 600 dpi with REt & FastRes (1200 dpi effective output), 16MB RAM, 250-sheet input bin, 10,000 pages/month, USB & parallel interfaces.

$329

CLJ 1600

HP Color LaserJet 1600 Printer:
• Print speed (letter and A4): Up to 8 ppm, colour and black • First page out: 20 seconds • Resolution: 600 by 600 dpi • Processor: 264 MHz Motorola CFV4e • Memory: 16 MB • Duty cycle: Up to 20,000 pages per month

$349

CLJ2600N

• 600 x 600 dpi with HP ImageREt 2400
• Print speed: 8 ppm, color and black
• Duty Cycle: Up to 35,000 pages per month
• 16MB Memory
• Network Ready

$429

CLJ 2605

12ppm black, 10ppm color (A4), first page out - 20 seconds, 300MHz processor, HP ImageREt 2400, 64MB up to 320MB, PCL 6 & Postscript level 3 emulation, input: priority feed tray & 250 sheet tray, 35,000 duty cycle

2605 $489

2605DN $649

2605DTN $889

CLJ 2840

HP Color Laserjet 2840 all-in-1 print, copy, scan, fax & Digital Imaging
• Print Resolution: 600x600 dpi, up to 19ppm Black & 4ppm Color A4
• Duty Cycle:Up to 30,000 pages per month
• Memory: 96MB
• Scan resolution: 1200x1200 dpi optical

$789

Laserjet 3050

• Print: Up to 19 ppm Letter / 18 ppm A4 black; Up to 1200 x 1200 dpi black; Up to 7000 pages per month duty cycle; Scan: Up to 19,200 dpi enhanced & up to 600 dpi optical; Copy: Up to 19 ppm letter (up to 18 ppm A4) ,

$399

Laserjet 3052

• Print: Up to 19 ppm Letter / 18 ppm A4 black; Up to 1200 x 1200 dpi black; Up to 7000 pages per month duty cycle; Scan: Up to 19,200 dpi enhanced & up to 1200 dpi optical; Copy: Up to 19 ppm letter (up to 18 ppm A4)

$469

Laserjet 3055

• Print: Up to 19 ppm Letter / 18 ppm A4 black; Up to 1200 x 1200 dpi black; Up to 7000 pages per month duty cycle; Scan: Up to 19,200 dpi enhanced & up to 1200 dpi optical; Copy: Up to 19 ppm letter (up to 18 ppm A4)

$529

Laserjet 3390

HP LaserJet 3390 All-In-One lets you print and copy complete, high quality, documents in no time. It easily and reliably connects multiple users with standard 10/100 Base-T Ethernet networking or Hi-Speed USB2.0 Port.

$789

PSC 5180/ 6180

Printer/Fax/Scanner/Copier
Print 32ppm black & 31ppm color; Scan: 4800x4800dpi optical, Fax: 3 secs/page at 33.6kbps, USB & PictBridge, 3000 pages/month. 2.5" or 3.6" LCD

6180: Wireless

$229/329

CLP300N

CLP-300N Network Colour Laser Printer, 16 PPM in mono and 4 PPM in colour, with a max resolution of 2400 x 600 dpi, Manual Duplex, includes 150 sheet paper cassette, plus a 100 sheet output tray, Postscript3 and PCL 6 Emulation, Ethernet 10/100 Base TX, USB2.0

$309

SCX-4200

Samsung low cost black and white laser printer, Fax & Copy 3 in 1 multifunction
• Print: Up to 18ppm A4, 600x600dpi
• Scan resolution: 600 x 2400 dpi
• LCD: 2 Line x 16 Characters

$179

SCX-4521F

Laser Multifunction Printer, Copier, Fax, Colour Scanner: Print sharp text and graphics at speeds up to 20 ppm. Fax fast with 3-second scan and 3-second transmission speeds. Fax directly from your PC. Or copy and scan with distinctly professional results.

$239

ML-3051N/ ND

Samsung ML-3051N Monochrome Laser Printer, 28 ppm, USB2.0 & Parallel Interfaces, 250 Sheet paper tray, 10/100 Network Card

ML-3051ND: inbuilt Duple:

ML-3051N $209

ML-3051ND $300

Canon Lide90 Scanner

CanoScan LiDE 90 Colour Flatbed Scanner:
• Optical Resolution: 2400 x 4800 dpi
• Scanning Gradation: Colour 48-bit input / 48-bit or 24-bit output
• Preview : Approx. 14 seconds
• Scanning Time (ms/line): Colour 9.6 (1200 dpi) 18.9 (2400 dpi)

$129

Canon 600F Scanner

• High quality scanning at 4800x9600 dpi.
• 7 EZ buttons allowing you to quickly create a multiple-page PDF file • FARE Level 3, the optimal solution for film scanning.
• Film scanning: 6 frames of 35mm filmstrip (negative/positive)
• One-plug-in startup - No power cord

$209

Canon 8800F Scanner

Canon CanoScan 8800F Flatbed Scanner:
• Optical Resolution: 4800 x 9600 dpi
• Preview : Approx. 4 seconds
• Scanning Speed (film): 6.8-67.5 msec/line
• Film scanning features, Film types: 35mm strip (negatives/positives): 12 frames

$289

Canon DR-1210C

DR-1210C High-volume Document Scanner:
• Optical Resolution: 600dpi
• Scan Speed :Black & White, Greyscale, Colour -12pppm (flatbed approx 12 sec.)
• Daily Duty Cycle: 400 scans per day
• 35 page automatic document feeder

$509

EPSON Perfection V200

• Optical Resolution : Main 4800 dpi x Sub 9600 dpi • Document Size : Reflective : 216 x 297mm (A4+Letter) Transparency : 35mm Strip film 6 frames;
• • Scanning Speed: Monochrome : A4 300dpi 16 seconds 24 bit colour : A4 300 dpi, 16 seconds

$209

EPSON Perfection V500

• Optical Resolution : Main 6400 dpi x Sub 9600 dpi • Document Size : Reflective : 216 x 297 mm (A4+Letter) Transparency : 35mm Strip film 12 frames • Scanning Speed: Monochrome : A4 300dpi 14 seconds 24 bit colour : A4 300 dpi, 15 seconds

$409

EPSON Perfection V700

• Super Res. Lens for 6400 dpi film scan
• Remove dust and scratches with DIGITAL ICE™ Technologies
• Excellent tone reproduction with 4.0 DMax optical density
• Scan film of up to 8x10"
• USB 2.0 and IEEE 1394 connection

$719

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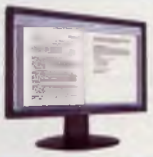
Model	19" Acer AL1916WD	22" Acer AL2216WD	22" Acer X223WB	24" Acer AL2416WD	19" BenQ G900W	19" BenQ G900	22" BenQ FP222W	24" BenQ FP241W
View Angle	150H/135V	170/160	170/160	178/178	160/160	160/160	170/160	178/178
Contrast ratio	700:1	700:1	2500:1	1000:1	800:1	800:1	700:1	1000:1
Brightness	300cd/m²	300cd/m²	300cd/m²	500cd/m²	300cd/m²	300cd/m²	300cd/m²	500cd/m²
Response Time	5ms	5ms	5ms	6ms	5ms	5ms	5ms	5ms
Resolution	1440x900	1680x1050	1680x1050	1920x1200	1440x900	1280x1024	1680X1050	1920X1200
Price	$239	$339	$349	$569	$259	$289	$329	$969

Model	19" LG L1919S	19" LG L194WT	19" LG L1953T	22" LG L226WTQ	24" LG L246WH	15" LG 1510BF Touch	22" Asus VW222U	22" Asus MW221C
View Angle	160/160	160/160	170/170	170/170	178/178	160/140	170/160	170/160
Contrast ratio	1400:1	2000:1	2000:1	3000:1	2000:1	450:1	2000:1	2000:1
Brightness	300cd/m²	300cd/m²	300cd/m²	300cd/m²	500cd/m²	250cd/m²	300cd/m²	300cd/m²
Response Time	8ms	5ms	5ms	2ms	5ms	16ms	2ms	2ms
Resolution	1280x1024	1440x900	1280x1024	1680x1050	1920X1200	1280x768	1680x1050	1680x1050
Price	$249	$249	$259	$409	$729	$609	$349	$409

Model	19" Chimei CMV-946D	22" Chimei CMV-221D	19" Philips 190S8FB	20" Philips 200WS8FB	22" Philips 220WS8FB	17"Samsung 740N	17"Samsung 740B	19"Samsung 931C
								
View Angle	160/140	170/160	176/170	160/160	160/160	160/160	160/160	160/160
Contrast Ratio	600:1	800:1	800:1	800:1	1000:1	600:1	600:1	2000:1
Brightness	330cd/m²	330cd/m²	300cd/m²	300cd/m²	300cd/m²	300/cdm²	300cd/m²	250/cdm²
Response Time	2ms	5ms	5ms	5ms	5ms	5ms	5ms	2ms
Resolution	1440x900	1680x1050	1280x1024	1680x1050	1680x1050	1280x1024	1280x1024	1280x1024
Price	$239	$319	$279	$289	$369	$239	$259	$329

Model	19"Samsung 940N	19"Samsung 940B	19"Samsung 940BW	20"Samsung 204B	20"Samsung 205BW	20"Samsung 206BW	22"Samsung 226BW	24"Samsung 245B
View Angle	160/160	160/160	160/160	160/160	160/160	160/160	160/160	160/160
Contrast Ratio	700:1	700:1	500:1	800:1	600:1	600:1	3000:1	3000:1
Brightness	300/cdm²	300/cdm²	300/cdm²	300/cdm²	300/cdm²	300/cdm²	300/cdm²	400/cdm²
Response Time	5ms	5ms	4ms	5ms	6ms	6ms	2ms	5ms
Resolution	1280x1024	1280x1024	1440x900	1600x1200	1680x1050	1680x1050	1680x1050	1680x1050
Price	$259	$309	$289	$369	$309	$339	$449	$769

Model	19"Viewsonic VA1912W	19"Viewsonic VA903M	19"Viewsonic VG1930WM	19"Viewsonic VX1932WM	20"Viewsonic VA2026W	22"Viewsonic VA2226W	22"Viewsonic VX2235WM	22"Viewsonic VX2245WM
View Angle	150/130	150/135	150/135	160/160	170/160	170/160	170/160	150/140
Contrast Ratio	500:1	700:1	700:1	2000:1	1000:1	1000:1	700:1	700:1
Brightness	300cd/m²	300cd/m²	300cd/m²	300cd/m²	300cd/m²	300cd/m²	280cd/m²	280cd/m²
Response Time	8ms	8ms	5ms	2ms	5ms	5ms	5ms	5ms
Resolution	1440x900	1280x1024	1440x900	1440x900	1680x1050	1680x1050	1680x1050	1680x1050
Price	$249	$269	$259	$269	$289	$329	$349	$369

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MP3 Player

SanDisk Sansa

- Sleek, thin design with large 1.8" TFT color screen
- Strong alloy metal casing
- User replaceable and rechargeable Lithium Ion battery
- Digital FM tuner

2GB E250 $129
4GB E260 $159
8GB E280 $199

i-Rocks MP3 FM Transmitter

By plugging in your USB flash drive or MP3 player (or any audio source with an audio output) into the i-Rocks IR-1110 MP3 DJ FM Transmitter - Silver and then tuning to the specified FM channel, you can immediately enjoy listening to your favourite digital music over your car stereo.

$59

Rock Digital Photo Frame

- SD card slot supporting SD, MMC cards
- Slideshow supporting JPEG files
- Photo display supporting 5 million pixels
- Auto play when inserting SD card
- Only a few buttons for basic control
- Easy operation without remote controller
- Support both upright and sideways position
- Hook eyes for application on the wall

7" $109
8" $199

Kaiser Baas Digital Photo Frame

Show all your digital photos as slideshows with background music: • Easy-to-use menu screen with onboard buttons • 32MB memory • Adjustable leg length • Rotate, Zoom, Set Slideshow Duration • Wall mount hole & tripod screw hole • Infra-red remote control

8" $249
10" $299

Projectors

EPSON EMP-S5

- 2000 ANSI lumens (Low Brightness mode)
- Contrast 400:1
- Lamp : 170W UHE, Lamp Life :4000Hr (Low Brightness); 3000Hr (High Brightness)

$899

EPSON EMP-TW20

- High Brightness Mode: 1200 ANSI Lumans (Dynamic)
- Contrast: 1,000:1
- Aspect ratio: 16:9
- Weight: Approx. 3.5kg

$1299

LG DS325

- Brightness: 2500 ANSI lumens
- Contrast: 2500:1
- Native SVGA(800x600)
- Lamp Life: Normal = 3000hr, Economic = 4000hr
- Ultra Light Weight 1.9Kg

$999

LG DX130

- Brightness: 3000 ANSI lumens
- Contrast: 2000:1
- 7" DMD, 1400x1500 SVGA+
- Lamp Life: Normal = 3000hr, Economic = 4000hr
- Ultra Light Weight 1.9Kg

$1599

BenQ MP511

- Brightness: 2000 ANSI Lumens
- Contrast Ratio: 2000:1
- Lamp Life Up to 2000/3000 hours (Normal/Economic mode)
- SVGA(800 x 600) Native Resolution

$899

BenQ MP612

- Brightness: 2500 ANSI Lumens
- Contrast Ratio: 2000:1
- Lamp Life Up to 3000/4000 hours (Normal/Economic mode)
- Image size: 24" to 300"

$979

BenQ MP622C

- Brightness: 2200 ANSI lumens
- Contrast: 2000:1, Aspect ratio: 16:9
- Lamp 200W, Life Up to 3000/4000 hours (Normal/Economic mode)
- Native Resolutio: XGA (1024 x 768)

$1199

BenQ MP622

- Brightness: 2700 ANSI lumens
- Contrast: 2000:1, Aspect ratio: 16:9
- Lamp 200W, Life Up to 3000/4000 hours (Normal/Economic mode)
- Native Resolutio: XGA (1024 x 768)

$1399

acer XD1170D

- Brightness: 2,300 ANSI Lumens (STD)
- Contrast Ratio: 2000:1
- Native Resolution: 800 x 600 (SVGA)
- Dimension: 230 x 238 x 123 mm
- Weight: 2.2kg

$879

acer P1165

- Brightness: 2,400 ANSI Lumens (STD)
- Contrast Ratio: 2000:1
- Native Resolution: 800 x 600 (SVGA)

$999

TOSHIBA TDP-S8

- Native Resolution: SVGA 800x600
- Resolution: S-VGA 800 x 600 pixels Compressed resolution
- Brightness: 2000 ANSI Lumens
- Contrast Ratio: 2000:1
- Lamp: 200W

$899

TOSHIBA TDP-T9

- Resolution: XGA 1024 x 768 pixels
- Brightness: 2000 ANSI Lumens
- Contrast Ratio: 2000:1
- Remote control with laserpointer

$1229

SONY VPLCS21

- 3LCD technology
- Stylish design - slimmest in the market
- 2100 ANSI Lumens
- Light weight of 1.9kg
- SVGA (800 x 600)

$1599

SONY VPLCX21

- 3LCD technology
- Stylish design - slimmest in the market
- 2100 ANSI Lumens
- XGA (1024 x 768) resolution
- Light Weight of 1.9kg

$2189

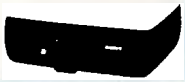
SONY VPLES4W

- 3LCD technology
- 2200 ANSI Lumens
- SVGA (800 x 600)
- Password Authentication System
- Low Fan Noise

$999

SONY VPLEX4W

- 3LCD technology
- 2100 ANSI lumens in high lamp mode
- Seven Picture Modes
- Approximately 4 seconds to display an image after



$1299

Joy Stick

Harmony 525

With instant access to an internet-based worldwide database of infra-red codes, you can control all devices from all manufacturers, including HDTV, satellite and cable boxes.

$99

Harmony 785

Harmony 785 Advanced Universal Remote • Simple one-touch activity control • Replaces up to 15 remote controls • Large and clear colour LCD display • Long lasting rechargeable battery

$229

Harmony 1000i

Logitech® Harmony® 1000 Advanced Universal Remote, the latest and most intelligent evolution of simple, 3.5" color one-touch fingertip control.

$369

Microsoft Xbox360 Controller

the Xbox 360 Controller for Windows delivers a consistent and universal gaming experience across both of Microsoft's gaming systems.

$59

Attack3

The entry level eight button joystick with a versatile grip handle; includes throttle control.

$29

Extreme 3D Pro

Premium twist handle joystick with a modern design for maximum comfort and control.

$39

Momo Racing Force Feedback Wheel

With a full rubber wheel and a stick shift, this MOMO designed Force Feedback wheel turbocharges you driving experience.

$129

G25 Racing Wheel

The G25's unique dual-motor force feedback transmission delivers powerful, high-fidelity force effects to the hand-stitched leather wheel, so you can feel under-and oversteer.

$329

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Media 600 Keyboard

Logitech

Sleek. Ultra-flat design with Convenient controls. work smarter, communicate better, and have more fun with this Ultra-flat keyboard that offers ergonomic features and a wealth of convenient functions keys.

$39

Wave Keyboard

Logitech

Catch the wave with the Logitech® Wave Keyboard™—the exciting new shape of comfort. It's created for hands just like yours, with contoured, uniform-size keys that cradle your fingers naturally while the curved keyboard promotes a more ergonomically correct hand position.

$69

G15 Gaming KB

Logitech

The Logitech® G15 offers gamers in-game information, programmability and control. Its adjustable-tilt, backlit LCD display shows you crucial information during game play, and lets you set timers to keep track of game events.

$109

Deluxe 250 Desktop

Logitech

The Logitech® Deluxe 250 Desktop offers a comfortable, conservatively-designed keyboard with drain holes for spill-resistance. The desktop includes the best-selling and equally durable Logitech® Optical Mouse. with a familiar shape and a quality feel—ideal for any user.

$29

Cordless Desktop EX110

Logitech

Have the clean, wire-free desk space you've dreamed about. The sleek Logitech® Cordless Desktop® EX 110 makes it incredibly easy and affordable to go cordless—in style.

$59

Cordless 1500 Rechargable Desktop

Logitech

The Cordless 1500 Rechargeable Desktop includes the new Logitech Cordless 1500 Keyboard and the Logitech LX700 Cordless Rechargeable Optical Mouse. The desktop is offered in Midnight Black with Quick Silver accents.

$89

Cordless Desktop LX 310 Laser

Logitech

The Cordless Desktop LX310 Laser offers a state of the art cordless laser mouse for pixel precision photo editing, vertical or horizontal scrolling, one-touch zoom, and Windows Vista Flip 3D.

$69

Cordless Desktop LX 710 Laser

Logitech

Maximize your music and photo experience with easy-to-use, one-touch controls for audio playback and image editing. Enjoy superior comfort with soft-touch surfaces, adjustable keyboard angles, and industry-leading durability and reliability.

$89

Cordless Desktop Wave

Logitech

The Logitech Wave key design instinctively guides your hands into a natural position for enhanced comfort and productivity.

$129

Cordless Desktop MX™ 5000 Laser

Logitech

The Cordless Desktop MX 5000 Bluetooth Laser, the keyboard's LCD lets you navigate media playlists or online radio stations, view time/date and more while awesome touch-sensitive media controls let you glide to exactly the desired

$199

diNovo™ Media Desktop™ Laser

Logitech

The Logitech® diNovo™ Media Desktop Laser: • Bluetooth® MediaPad — long range Bluetooth® enabled remote commander • Rechargeable MX Laser mouse • Unique, ultra-flat keyframe technology • Smart power management • Tilt Wheel Plus Zoom™

$219

diNovo Edge

Logitech

An ideal partner for any high-end computer, the ultra-slim Logitech® diNovo Edge™ delivers the ultimate in feel and response. The revolutionary TouchDisc™ with hyper-speed scrolling and pixel-perfect control makes trackpads obsolete.

$229

Microsoft Business Hardware Pack

- Built-in zoom slider—zoom in and out
- "My Favorites" keys–easy access to Web sites and files & Customizable hot keys
- Multimedia center
- Detachable palm rest

$49

Microsoft Digital Media Pro Keyboard

It features a new Zoom Slider that lets you zoom in and out of documents and pictures with ease. Customizable My Favorites keys, Media Center, and Hot Keys give you one-touch access to commonly accessed media, programs, and files.

$49

Microsoft Natural Ergonomic 4000

The Natural Ergonomic Keyboard 4000 is designed to give you a more natural wrist alignment, letting you work more comfortably. One-touch access to commonly used files and programs enhances productivity.

$69

Microsoft Remote KB for WinXP Media Center

Microsoft Remote Keyboard for use with Windows Media Centre Edition. 3-in-1 keyboard with integrated mouse and remote control. Launch digital media, surf the Web, watch movies, and send instant messages from up to 30 feet away.

$69

Microsoft Wireless Optical Desktop 2000

The Microsoft® Wireless Optical Desktop 2000 features a compact Comfort Curve keyboard that lets your hands rest naturally and comfortably.

$59

Microsoft Wireless Laser Desktop 6000

Microsoft Wireless Laser Desktop 6000 features: High Definition Laser Technology, Wireless Freedom, Magnifier, Zoom Slider, Comfort Curve Keyboard Layout

$89

Microsoft Wireless Entertainment Desktop 7000

This ultra-thin entertainment desktop set with rechargeable mouse delivers on/off desk top-notch performance with virtually no interference—from up to 30 feet away.

$199

Microsoft Wireless Entertainment Desktop 8000

The ultimate rechargeable keyboard and mouse for Windows Vista® and PC entertainment. Designed to make it easier than ever to control PC media from your desk, your lap–or even from the comfort of your couch.

$349

Microsoft Natural Wless Ergonomic Desktop 7000

The innovative shape of the keyboard and mouse encourage a more natural hand, wrist, and forearm posture.

$159

CREATIVE Prodikeys

Creative Prodikeys PC-MIDI PC & MIDI USB Keyboard, 37 mini-sized music keys with touch-sensitivity. Removable palm rest (Music keys cover), Snap-on colour faceplate, Music button, Customizable hotkeys, Media playback buttons, Volume control wheel. Software Suite allows for easy creation of music

$79

Razer Tarantula Tournament Ed. Gaming KB

32kb onboard memory (up to 5 customizable profiles), 10 programmable hot keys, on-the-fly gaming profile activation, Fully interchangeable keys to allow different key placement around the board, Media center keys to control media programs

$129

Ideazon Merc Stealth Gaming Keyboard

- Illumination: Perfect for gaming in the dark
- Dedicated Gaming Terrain: Amazing touch and response for hours of comfortable gaming • Z Engine Software • Control Center

$139

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LX5 Cordless Optical Mouse

Logitech

Cordless Freedom made easy. The Logitech LX5 Cordless Optical Mouse installs effortlessly and features smart power management for up to 8 months of battery life. Tilt wheel plus zoom is perfect for viewing digital photos and spreadsheets. Battery indicator light.

$35

LX8 Cordless Laser Mouse

Logitech

Logitech LX8 Cordless Laser Mouse.
• High-performance: Experience unmatched precision and control on surfaces
• Comfortable mouse design: Contoured sides and soft rubber grips add support and ease of use

$59

G5 Laser Mouse

Logitech

Logitech G5 Laser Mouse features: PC • Optical • USB • Scroll wheel • Application Switch • Tilt Wheel Plus Zoom™ • Right-Handed Comfort Grip • Laser Technology

$79

G7 Laser Cordless Mouse

Logitech

Logitech G5 Laser Mouse features: PC • Cordless • USB • Scroll wheel • Application Switch • Tilt Wheel Plus Zoom™ • Right-Handed Comfort Grip • Rechargeable • Laser Technology

$109

G9 Laser Gaming Mouse

Logitech

Logitech G9 Laser Gaming Mouse features:
• Interchangeable Grips
• 3200 dpi laser engine with Full-Speed USB
• Game settings to go
• MicroGear™ Precision Scroll Wheel
• Adjustable sensitivity
• Weight tuning system

$119

MX400 Laser

Logitech

The contoured shape and soft rubber grip make using the MX-400 effortless, while advanced laser technology provides ultra-precise tracking on almost any imaginable surface, including those that resist optical mice.

$45

MX620 Cordless Laser Mouse

Logitech

Logitech MX620 Cordless Laser Mouse:
• Revolutionary hyper-fast scroll wheel
• Laser precision
• Cordless Freedom
• Extended battery life
• Advanced search and navigation

$69

MX™ Revolution

Logitech

Smarter, faster, and fully-loaded, Logitech's innovative MicroGear™ Precision Scroll Wheel lets you fly through long documents at hyperspeed, or switch to precise click-to-click scrolling for navigating lists, slides, and image collections.

$99

V450 Laser Cordless for Notebooks

Logitech

Logitech® V450 Laser Cordless Mouse for Notebooks, Laser precision, ergonomic comfort. Redefining mobile performance with laser tracking, a comfortable design, and up to a year of battery life.

$55

V470 Bluetooth

Logitech

The V470 Cordless Laser Mouse connects to notebooks enabled with Bluetooth wireless technology, freeing you from the hassle of cords and the need for a receiver. Laser tracking technology outperforms optical mice and delivers smoother cursor control on nearly any surface.

$59

VX Revolution

Logitech

Logitech VX Revolution, the ultimate notebook mouse. Logitech's innovative MicroGear™ Precision Scroll Wheel lets you fly through long documents at hyperspeed, or switch to precise click-to-click scrolling to navigate lists, slides, and image collections.

$65

VX Nano Cordless Laser

Logitech

The ultra-portable Logitech VX Nano Cordless Laser Mouse for Notebooks is always ready to use thanks to the plug-and-forget nano-receiver - the world's smallest USB receiver.

$89

MX Air Rechargeable Cordless

Logitech

Logitech MX Air - Rechargeable Cordless Air Mouse features: • Laser performance
• Freespace motion sensing • Scroll panel
• Easy control of PC-based entertainment
• Gesture controls

$159

Cordless 2.4GHz Presenter

Logitech

Logitech's Cordless 2.4 GHz Presenter lets you effectively manage your time during presentations with a built-in and programmable LCD timer.

$69

Microsoft Wheel Optical

Wheel Mouse Optical replaces the old-fashioned mechanical mouse ball, allowing you to work on virtually any surface. With a convenient scroll wheel and comfortable design, Wheel Mouse Optical is a great value.

Beige/Black

$19

Microsoft Intellieye Optical Mouse

Microsoft's IntelliMouse Optical features silver detailing, Microsoft's signature glowing red underside and taillight, and ergonomic enhancements to provide comfort for left- and right-handed users.

$25

Microsoft Explorer Optical Mouse

Microsoft IntelliMouse Explorer with Tilt Wheel Technology changes the way you scroll – now you can scroll horizontally as well as vertically – making it faster and easier to move through documents and web pages.

$35

Microsoft Wireless Notebook Optical Mouse 4000

Travel in comfort and control with the Microsoft Notebook Optical Mouse 4000. Get greater control with Tilt Wheel Technology for 4-way scrolling and Magnifier for enlarging screen details. Plus, prolong battery life with the Snap-in Receiver that automatically turns off the mouse.

$39

Microsoft Standard Wirelss Optical Mouse

Turn your desktop into a vibrant, clutter-free space with the Wireless Optical Mouse. Wireless technology, a wider, clear scroll wheel, and signature red optical glow combine in a fun design.

$39

Microsoft Habu™ Laser Gaming Mouse

Microsoft Habu Laser Gaming Mouse unites legendary Microsoft comfort with the latest in Razer precision. It features:
• Ergonomic design
• Wheel scrolling
• USB connector
• Customizable buttons

$79

Microsoft Remote Control and Receiver for Media Center PC

A Media Center compatible remote control that keeps all of the entertainment on the computer within easy reach and complements the keyboard and mouse.

$49

Razer Diamondback

Razer Diamondback Infrared Optical Precision Gaming Mouse, 7-Buttons independently programmable, 1600 DPI high performance sensors, 6400 frames per second, 16 bit data path, High speed motion detection, Ultra large non-slip mouse buttons, rubber siderails for improved grip, Always On Mode, Chameleon/ Green/ Plasma/ Salamander available.

$69

Razer Copperhead

Razer Copperhead Infrared High Precision Gaming Mouse with Blue LED, 7 Hyperesponse Buttons independently programmable, 2000 DPI high performance sensors, 1ms Response Time, 32KB Onboard Memory, up to 3 Customizable Weights, 16 bit data path, High speed motion detection, Ultra large non-slip mouse buttons with Hyperesponse, Always On Mode, Blue or Red Color.

$79

Razer DeathAdder

Razer DeathAdder Infrared High Precision Gaming Mouse, 5-Buttons independently programmable, 1800DPI, 16-bit Ultra-Wide Data Channel, USB2.0

$89

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Canon A460
- 5.0 Megapixel
- 4x optical zoom lens
- Super fast DiG!C II Imaging Processor
- 2.0" LCD Screen
- Movie recording and play-back

$129

Canon A550
- 7.1 Megapixel
- 4x optical zoom lens.
- DiG!C II Imaging Processor
- 2.0" LCD Screen
- Movie recording and play-back with sound.

$169

Canon A560
- 7.1 Megapixels
- 4x optical zoom lens.
- Face Detect with Auto Focus, Auto Exposure, Flash Exposure and in camera red-eye correction
- 2.5" LCD Screen

$239

Canon A570is
- 7.1 Megapixels
- 4x optical zoom lens.
- DiG!C III and Image Stabilizer
- 2.5" LCD Screen

$339

Canon A650is
- 12.1 Megapixels
- 6x Optical zoom
- Optical Image Stabilizer
- 2.5" LCD Screen
- DiG!C II

$479

Canon A720is
- 8 Megapixels
- 6x Optical zoom
- Optical Image Stabilizer
- 2.5" LCD Screen
- DiG!C II

$309

Canon G9
- 12.1 Megapixels.
- Canon 6x optical zoom lens with Optical Image Stabilizer.
- Huge 3 inch LCD screen.
- Full manual controls

$679

Canon IXUS70
- 7.1 Megapixels.
- 3x optical zoom lens.
- DIG!C III Imaging Processor
- Face Detect with Auto Focus, Auto Exposure, Flash Exposure and in camera red-eye correction

$279

Canon IXUS75
- 7.1 Megapixels.
- 3x optical zoom lens.
- DIG!C III Imaging Processor
- Face Detect with Auto Focus, Auto Exposure, Flash Exposure and in camera red-eye correction

$319

Canon IXUS 860is
- 8 Megapixel.
- Canon 3.8x optical zoom
- 28mm wide lens.
- Huge 3 inch LCD screen.

$469

Canon IXUS 950is
- 8 Megapixels.
- Striking Titanium body
- Canon 4x optical zoom
- Huge 2.5 inch LCD screen.

$399

Canon IXUS 960is
- 12.1 Megapixels.
- Striking Titanium body
- Canon 3.7x optical zoom
- Huge 2.5 inch LCD screen.

$519

Canon SX100is
- 8 Megapixel.
- Canon 10x optical zoom
- Movie Mode with Audio
- 2.5 inch LCD screen.

$369

Canon S5is
- 8 Megapixel.
- Canon 12x optical zoom
- Optical Image Stabilizer
- 2.5 inch LCD screen.

$549

Canon TX1
- 7.1 Megapixel.
- 10x optical zoom lens with Optical Image Stabilizer.
- High definition movie with stereo sound.
- DiG!C III Imaging Processor

$439

Canon DC220
- Powerful Canon 35x zoom
- 800k pixel CCD and DiG!C DV II
- Ultra fast QuickStart < 0.7seconds
- Real Widescreen recording and 2.7" Widescreen LCD

$529

Canon DC230
- Powerful Canon 35x zoom
- 1.07M pixel CCD and DiG!C DV II
- QuickStart
- Real Widescreen recording and 2.7" Widescreen LCD
- Night Mode LED & Wireless Remote Control

$579

Canon MD160
- Powerful Canon 35x zoom
- High resolution 1.07M pixel CCD and DiG!C DV
- Ultra fast QuickStart less that 0.7seconds
- 2.7" Widescreen LCD
- Night Mode LED & Wireless Remote Control

$489

Panasonic DMC-FX12
- 7.2Megapixel
- 3x optical zoom with MEGA OIS, 2.5" LCD screen.
- Record stunning movies in wide VGA 848x480.
- Long battery life. Up to 350 shots.

$289

Panasonic DMC-FZ18
- 8 Megapixel Effective
- 18x Optical Zoom with 28mm Wide Angle Lens
- 2.5 inch Large Bright LCD
- Full Manual Selection

$689

Panasonic DMC-FZ8
- 7 Megapixel Effective
- 12x Optical/4xDigital Zoom
- 2.5 inch Large Bright LCD
- Dual Image Stabilisation
- 27MB built-in memory

Available: Black or Silver

$529

Panasonic DMC-TZ3
- 7.2 Megapixel Effective
- 10x Optical Zoom, 4xDigital Zoom
- 28-280mm OIS Lens
- 3.0" LCD

$529

Panasonic VDR-D160
- 30x Optical Zoom
- Pure Colour Engine
- Support Multi-Format Recording (DVD-RAM, DVD-R, DVD-RW)
- Joystick control
- Simple, one-handed operation

$509

Panasonic SDR-H20
- 30G HDD for stable long recording sessions.
- Massive 32x Optical Zoom
- 2.7" Wide LCD
- Pure Colour Engine

$709

Panasonic SDR-S10
Panasonic SDR-S10, 10x Optical Zoom, 2.7" wide LCD, Water Resistance, 1.2m shock proof, 2GB SD Card included, MPEG2 recording

$649

Olympus FE270
- 3x optical zoom
- One button, one function design principle
- Shakeproof anti-blur mode
- Large 2.5" LCD screen
- 15 scene modes

$179

Olympus FE280
- 3x optical zoom
- Slim metal body
- Shakeproof anti-blur mode.
- Large 2.5" LCD screen.
- Movie mode with sound.
- Lithium ion battery&charger

$269

Olympus MJU790
- Shock Proof up to 1.5M.
- Exciting shots in and by the water (3m waterproof)
- Face Detection
- Snowproof to temperatures as low -10°C.

$439

Olympus MJU795
- Waterproof to 10M and Shock Proof up to 1.5M.
- Snowproof up to -10°C, Crushproof up to 100kg.
- Metal body is both rugged and elegant.

$539

Olympus SP560
- 18x Optical Zoom
- Wide angle lens (equiv. 35mm) 28 - 504mm
- Dual Image Stabilization
- High burst rate (up to 15fps at 1.2 Megapixel)
- Super Macro mode

$699

Sony DSCH9
- 8.1 Megapixel CCD
- 15x Optical Zoom / 24x Precision Digital Zoom
- 3.0" Free angle Clear Photo LCD

$669

Sony DSCS700
- 7.2MP Camera
- 3X Optical Zoom• 24mb internal Memory
- 2.4" Colour LCD
- Memory Stick Duo & Pro Duo compatible.

$189

Sony DSCT70
- 8.1 Effective Mega Pixels
- 3X Optical Zoom
- High Definition 1080i Output • 3.0" Hybrid LCD Touch screen • Black, Silver & Pink available

$489

Sony DSCT200
- 8.1 Effective Mega Pixels
- 5X Optical Zoom / Full Metal Body • Full HD 1080i Output • 3.5" Wide 16:9 LCD Touch Screen • Black, Silver & Red available

$599

Sony DSCW55
- 7.2 Megapixel
- 3 x Optical Zoom, 58mb internal memory
- Carl Zeiss Vario-Tessar lens
- 2.5" LCD. Memory Stick Duo & PRO Duo compatible.

$289

Sony DSCW80
- 7.2 Megapixel
- 3 x Optical Zoom
- Full Metal Body
- Carl Zeiss Vario-Tessar lens
- 2.5" LCD. Memory Stick Duo & PRO Duo compatible.

$349

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SONY MiniDV DCRHC48

- 25x Optical 50x / 2000x Digital zoom with wide angle setting
- Carl Zeiss Vario-Tessar Lens
- 1/6" (3mm) CCD with Advanced HAD Technology
- 2.7" Wide Touch Panel LCD Screen

$559

SONY DCRHC96

- 10X Optical/120X Digital Zoom
- Professional Quality Carl Zeiss Vario-Sonnar Lens
- 2.7" Wide Hybrid LCD Screen
- 1/3" 3.3 Mega Pixel CCD
- SteadyShot Picture Stabilization System

$759

SONY DCRDVD608

- Record Direct to DVD
- DVD+RW/-R/-RW /+R DL Recording Formats
- 1/6" (3mm) 960H CCD with Advanced HAD Technology
- 40x Optical / 80x/2000x Digital Zoom
- 2.5" Touch Screen LCD

$599

SONY DCRDVD708

- Record Direct to DVD
- DVD+RW/-R/-RW /+R DL Recording Formats
- 1/6" (3mm) 960H CCD with Advanced HAD Technology
- 25x Optical / 24x/480x Digital Zoom
- 2.7" Touch Screen LCD

$679

SONY DCRDVD808

- Record Direct to DVD, DVD-R/-RW/+RW format
- 10XOptical/20X/120X Digital
- 2.7" Wide Touch Screen
- 4.0 Megapixel

$859

SONY DCRDVD908

- 10x Optical / 20x/120x Digital Zoom, • Dolby Digital 5.1Channel Recording; Dolby Digital 2 Channel Recording, • 6.1 Mega Pixel Still Image Capture

$999

Camera Media

XD Card

1GB / 2GB XD Card	$49/69

Compact Flash Card

4GB Compact Flash oem / Sandisk	$59/69
1GB / 2GB Sandisk Ultrall Compact Flash	$35/49
4GB / 8GB Sandisk Ultrall Compact Flash	$89/169

Secure Digital Card

1GB / 2GB / 4GB Secure Digital	$19/29/49
1GB / 2GB / 4GB Sandisk Secure Digital	$25/35/69
1GB / 2GB Sandisk Mini Secure Digital	$25/35
1GB / 2GB Sandisk Ultrall Secure Digital	$29/45
4GB / 8GB Sandisk Ultrall Secure Digital	$79/149
1GB / 2GB Sandisk Transflash Micro Secure Digital	$25/45

Memory Stick Card

1GB / 2GB / 4GB Sandisk Memory Stick Pro Duo	$35/55/89
4GB Sandisk Memory Stick Pro Duo Ultrall	$99
8GB Sony Memory Stick Pro Due	$199

Camera Accessory

Canon Camera Accessories

Canon AC Power Adaptor ACK500/ 600/ 800/ 900	$99
Canon Battery Charger NB1LH/ NB2LH / NB3L/ NB4L/ NB5L	$69
Canon Camera Case SCDC20 / SCDC40/ SCPS600	$49
Canon Water Proof Case WPDC80 / WPDC90	$259
Canon Wide Lens Converter WDH27/ WDH34/ WDH37	$229
Canon Tele-Convertor Lens TCDC52/ TCDC58	$189

Panasonic Camera Accessories

Panasonic AC Power Adaptor DMW-CAC1	$139
Panasonic Battery CGA-002E	$99
Panasonic Marine Case DMW-MCFX01E / DMW-MCTZ1E	$459

Sony Camera Accessories

Sony AC Power Adaptor ACLS5K	$79
Sony Infolithium Rechargable Battery NPFC11/ NPFE1	$99
Sony Soft Carry Case LCSCP2 / LCSSA	$49
Sony Sports Pack for Mini DV & DVD Handy SPKHCB	$369
Targus 3-in-1 Bag/ Tripod/ 14-in-1 reader +3port Hub	$29

ASUS M530W

Smart Phone

ASUS M530w Smart Phone allows users to send and receive messages instantly anywhere providing vital information for users to make important and informed business decisions.

$639

ASUS R600 GPS

With an intuitive built-in auto light sensor that automatically adjusts the LCD backlight, BlueTooth handsfree, and the ability to transform into portable multimedia entertainment center, the R600 is a versatile and fashionable piece of hardware for enhanced navigational needs.

$429

HP IPAQ 112

HP IPAQ 112 Classic handheld, Ideal for consumers looking for a dedicated PDA device that can maximse battery life and provides a huge 3.5 inches of screen

- Processor: Marvell PXA310, 624 MHz
- RAM: 64MB
- Display: 3.5-inch Touch Screen
- Wireless LAN: 802.11b/g
- Bluetooth: v2.0 with EDR

$379

HP HP IPAQ 312

HP IPAQ 312 travel companion. This GPS device sports a custom-designed easy-to-navigate interface, a high-speed processor, Bluetooth phone connectivity and 4.3-inch screen. In addition to guiding you around town you can play music, games and DVD-quality video on it.

$469

HP IPAQ HX2190

HP IPAQ HX2190 pocket PC, Intel PXA270 312MHz Processor, 128Mb ROM, 64Mb RAM, 3.5" Transflective QVGA TFT, Bluetooth, CF/SDIO, Windows Mobile 5.0 Premium Edition. Dimensions: 119.4mm (H) x 76.6mm (W) x 16.3mm (D), Weight: 164.4g.

$469

HP IPAQ HX2490

HP IPAQ HX2490 Pocket PC Intel PXA270 Processor 520MHz, 128Mb ROM, 64Mb RAM, 3.5" Transflective QVGA TFT, Integ 802.11b, Btooth, CF/SDIO, MS Windows Mobile 5.0 Premium Edition Dimension: 119.4 x 76.6 x 16.3 mm / Weight 164.4 g

$549

HP IPAQ HX2790

HP IPAQ HX2790 Pocket PC Intel PXA270 Processor 625MHz, 192Mb ROM, 64Mb RAM, 3.5" Transflective QVGA TFT, 802.11b, Bluetooth, CF/SDIO, Biometric Reader, Windows Mle 5 Premium Edition Dimension: 119.4 x 76.6 x 16.3 mm / Weight 164.4 g

$689

HP IPAQ HW6965

- Intel PXA270 Processor 416 MHz
- 45MB available for persistent user storage 64 MB SDRAM
- Display: 75 mm Transflective TFT color
- Camera 1.3 Mega pixels
- Win Mobile 5.0 software
- 118 x 71 x 18 mm, Weight 179.45 g

with GPS $1129

$1029

HP IPAQ RX5765

HP IPAQ RX5765 GPS Navigation, Slim and stylish this GPS navigator combines personal entertainment features and travel assistant options so you can make the most of all your travels. • Integrated SiRFstarIII GPS receiver • Integrated omni-directional GPS antenna • Navigation software and maps pre-installed

$649

HP IPAQ RX5965

The RX5965 runs the Windows Mobile 5 operating system, so it features the full array of productivity applications, including Word Mobile, Excel Mobile, Messaging and Internet Explorer. For Internet access on the go it has built-in 802.11b/g WLAN and Bluetooth 2.0. However, the big addition to this unit is the in-built GPS functionality, with TomTom Navigator 6 software.

$729

TOMTOM ONE GPS Navigation

- Processor: 266MHZ
- Memory: 256MB
- Screen: 4.3", 320 x 240 full TFT Color LCD
- Dimension : 110x89x34mm
- Weight: 260g

$489

TOMTOM Rider V2 GPS

TomTom Rider v2 Motorcycle GPS Device - 3.5" Touchscreen LCD, Headset Voice Instructions, SD Card Slot, Waterproof

- Designed with bikers in mind
- User-friendly
- Great biking experience
- Safe & secure
- Smart services & extras

$869

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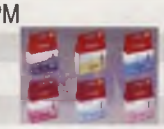
CPL IT GUIDE

January 2008

Canon Cartridges

Canon BCI-21BK	$13
Canon BCI-21C	$25
Canon BCI-24BK	$13
Canon BCI-24C	$22
Canon BCI-3EBK	$19
Canon BCI-3EC,3EM,3EY	$19
Canon BCI-3EPBK,PC,PM	$19
Canon BCI-6BK	$17
Canon BCI-6C,6Y,6M,6G,6R	$17
Canon BCI-6PC,6PM	$17
Canon CL41	$35
Canon CL51	$45
Canon CLI-8BK	$23
Canon CLI-8C,8Y,8M	$23
Canon CLI-8PC,8PM	$23
Canon PG-40	$35
Canon PG-50	$42
Canon PGI-5BK	$25
Canon CART301BK	$129
Canon CART301C,Y,M	$145
Canon CART303	$99
Canon CART307BK	$99
Canon CART307C,Y,M	$109
Canon CART308	$99
Canon CART308II	$169
Canon CARTU	$99
Canon EP22	$89
Canon EP25	$89
Canon EP26	$109
Canon FX9	$119



Samsung Cartridges

Samsung 1710D3	$99
Samsung 2010D3	$99
Samsung 4100D3	$99
Samsung 4216D3	$89
Samsung D4200A	$109
Samsung 4521D3	$109
Samsung 6060D6	$159
Samsung 300BK	$89
Samsung 300C,Y,M	$79
Samsung 500D5C,Y,M	$149
Samsung 500D7K	$139
Samsung 510D5C,Y,M	$149
Samsung 510D7K	$139
Samsung K600A	$119
Samsung C,M,Y600A	$169
Samsung 1650D8	$179

Epson Cartridges

Epson T003091	$49
Epson T007091	$29
Epson T008091	$25
Epson T009091	$39
Epson T013091	$23
Epson T014091	$29
Epson T026091	$35
Epson T027091	$29
Epson T028091	$35
Epson T029091	$35
Epson T032190,290,390,490	$39
Epson T034190,290,390,490	$19
Epson T034590,690,790,890	$19
Epson T038190	$19
Epson T039090	$28
Epson T042290,390,490	$18
Epson T046190	$18
Epson T047290,390,490	$13
Epson T049190,290,390	$18
Epson T049490,590,690	$18
Epson T051190	$28
Epson T052090	$28
Epson T054190,290,390,490	$18
Epson T054790,890,990	$18
Epson T056190,290,390,490	$13
Epson T059190,290,390	$19
Epson T059490,590,690	$19
Epson T059790,890,990	$19
Epson T062190,290,390,490	$19
Epson T063190,290,390,490	$14
Epson T073190,290,390,490	$15
Epson T081190,290,390	$24
Epson T081490,590,690	$24
Epson T082190,290,390	$19
Epson T082490,590,690	$19
Epson T557090	$39
Epson T559190,290,390	$18
Epson T559490,590,690	$18
Epson S020118,122,126,130	$99
Epson S050097,98,99	$209
Epson S050100	$99
Epson S050187,188,189	$159
Epson S050190	$109
Epson S050226,227,228	$209
Epson S050229	$99
Epson S050230,231,232	$129

HP Cartridges

HP 51625AA	$45
HP 51626AA	$45
HP 51629AA	$45
HP 51641AA	$45
HP 51645AA	$42
HP 51649AA	$45
HP C1823DA	$45
HP C4836A,37A,38A	$45
HP C4841A,42A,43A,44A	$45
HP 92298X	$159
HP C3903A	$119
HP C3906A	$99
HP C4096A	$139
HP C4127A/C4127X	$139/179
HP C4191A	$119
HP C4192A,93A,94A	$169
HP C7115A/C7115X	$89/109
HP C8061X	$179
HP C9700A	$119
HP C9701A,9702A,9703A	$139
HP C9720A	$209
HP C9721A,9722A,9723A	$279
HP Q1339A	$279
HP Q2610A	$159
HP Q2612A	$99
HP Q2613A/Q2613X	$99/129
HP Q2624A	$109
HP Q2670A,71A,72A,73A	$179
HP Q3960A	$119
HP Q3961A,62A,63A	$139
HP Q3971A,72A,73A	$109
HP Q5942A	$199
HP Q5949A/Q5949X	$99/179
HP Q6000A	$109
HP Q6001A,02A,03A	$119
HP Q7553A	$109
HP Y2016AA	$49
HP C8721WA	$26
HP C8765WA	$29
HP C8766WA	$35
HP C8767WA	$42
HP C8771WA,72,73,74,75	$16
HP C9351AA,52	$25
HP C9362WA,64WA	$25
HP C9363WA	$45
HP C9369WA	$35

Brother Cartridges

Brother LC21BK	$29
Brother LC21C,Y,M	$16
Brother LC47BK	$28
Brother LC47C,Y,M	$16
Brother LC800BK	$28
Brother LC800C,Y,M	$15
Brother TN2025	$75
Brother TN3030	$89
Brother TN04BK	$199
Brother TN04C,Y,M	$199

Latest Price Refer to The Age Green Guide P10

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USB cables

USB plug a-a 3m/5m	$12/15
USB extension a-a m-f 1m/2m/3m/5m	$7/10/12/15
USB a-b mini 2m/3m	$12/15
USB2 printer cable 1.8m/3/m/5m	$8/10/12
USB2 Plug a-a 2m/3m/5m	$8/10/12
USB data cable for connet 2 PCs	$30
USB a to b mitsumi 2m	$15
USB Gender Change	$10

Network Cables

RG58 cable BNC for 10/100 Ethernet 1m/2m/3m/5m/10m/15m/20m/30m	$6/7/$8/$10/$15/$20/$25/$35
Cat6 for 10/10/1000 Ethernet Straight Cable 1m/2m/3m/5m/10m/15m/20m/30m	$6/7/$8/$10/$15/$20/$25/35
Cat6 for 10/10/1000 Ethernet Cross-over Cable 1m/2m/3m/5m/10m/15m/20m/30m	$6/7/$10/$10/$15/$20/$25/35

Modem Cables

Null Modem cable db25f-f 2m	$10
Null modem cable db25f-f 5m	$15
Null modem cable db9f-db9f 2m	$10
Null modem cable db25m-9f/25f 1m	$10

Parallel Cables

IEEE 1284 Parallel printer cable 1.8m/5m/10m	$5/$8/$12
IEEE 1284 bi-tronic Parallel printer cable 1.8m/5m	$10/$20
Parallel cable DB25m-DB25m 1.8m/3m/5m/10m/20m	$5/$8/$10/$15/$20
Parallel cable DB25m-DB25f 1.8m/3m/5m/10m/20m	$5/$8/$10/$15/$20
Parallel cable DB25f-DB25f 10m	$15
RC3906 DB25-HPC36M 2M for HP prt	$19

Power Cables

Internal power splitter cable 2x5.25"f-1x5.25"m	$5
Internal power splitter cable 2x3.5"f-1x3.5"m	$5
P4 4-pin converter	$5
Internal ATX power extension	$10
PS/2 power cable	$10
IEC PC-Monitor cable	$5
PC power cable 1.8m/5m	$5/$10
3pin main plug to 2 x IEC female	$15
IEC male to 2 x IEC female	$15
Powersupply converter 4pin to 8pin EPS	$12
Powersupply converter 20pin to 24pin	$15
Powersupply converter 24pin to 20pin	$15

PS/2 Cables

PS/2 extention cable MD6 m-f 2m/3m/5m/10m	$5/$8/$10/$12
PS/2 extention cable MD6 m-m 2m/3m/5m/10m	$5/$8/$10/$12

Laplink Cables

Serial laplink cable db25m/db9f m-m 2m	$12
Serial laplink cable 2xdb25f/db9f 2m/3m/5m	$8/$10/$12

DVI Cables

DVI-D dual link extension m-m/m-f 2m	$25
DVI-D single link m-m 2m	$15
DVI-I dual link extension m-m/m-f 2m	$25
DVI-I single link m-m 2m	$20
DV17m to VGA hd15f	$15

Audio Cables

CD-Rom audio cable	$2
DVD-Rom digital 2 pin cable	$5
Optical square-square digital cable	$15
Optical square-round 3.5mm digital cable	$15
Optical round3.5mm - round 3.5mm digital cable	$15
Audio 3.5 stereo plug 2m	$5
speakers extension 3.5mm m-f	$5

IDE Cables

IDE flat ATA33 45cm	$5
IDE flat ATA100/133 45cm/80cm	$10/$15
IDE round ATA100/133 60cm/75cm/85cm	$18/$20/$25
Neon-blue round IDE 75cm 3connector	$45

SATA Cables

Serial ata power cable 12cm RC-5031	$6
Serial ata data cable 60cm RC-5032	$6

SCSI Cables

LVD external 68pin 2m HD M-M	$99
Internal LVD terminator HD68F	$45

MIDI Cables

MIDI Cable 120cm	$22

FDD Cables

Floppy cable 55cm	$5
Floppy cable extension	$10
Floppy round cable 50cm	$15
Neon-blue round 48cm	$29

VGA Cables

VGA monitor cable HD15 m-m 2m/5m	$5/$10
VGA monitor extension cable HD15 m-f 2m/3m/5m	$5/$8/$10
RGB monitor cable HD15-3xBNC 1.8m	$19
RGB monitor cable HD15-4xBNC 1.8m	$15
RGB monitor cable HD15-5xBNC 1.8m	$25
Monitor splitter cable 1xHD15m-2xHD15f 2m	$12
High quality monitor cable m-f with filter 2m/5m/10m/20m/30m	$12/$15/$25/$45/$55
High quality monitor cable m-m with filter 2m/5m/10m/20m/30m	$12/$15/$25/$45/$55
S-video male to RCA female adaptor	$8
S-video male to male cable 5m	$12
S-video to 2x RCA cable 5m	$12

IEEE1394 Cables

IEEE 1394 6p-6p 1.8m/5m	$12/19
IEEE 1394 6p-4p 1.8m/5m	$12/19
IEEE 1394 4p-4p 1.8m/5m	$12/19
1394-800 9p-9p 2m	$25
1394-800 9p-6p 2m	$25
2port 1394 cable for Gigabyte MB	$15

Serial Cables

Serial extension cable db9m-f 2m/5m	$5/$9
Serial cable db9m-db9m 2m	$5

KVM Cables

KVM Switch Cable Set 2m/3m	$19/29

Adaptor

USB to parallel adaptor	$29
USB to serial adaptor	$29
USB to PS/2 converter 2x PS/2 ports	$15
2 ports printer card PCI	$29
2 ports serial card PCI	$29
3 ports 1394 card PCI	$29
3.5" USB2 & 1394, PS/2 panel	$25
5.25" USB2 & 1394, PS/2 panel	$45
Coolermaster aerogate 2	$69
Coolermaster musketeer system detector	$65
Keyboard AT to PS/2 adaptor	$5
Keyboard PS/2 to AT adaptor	$5
Mouse PS/2 to serial adaptor	$5
Notebook HDD to IDE adaptor kit	$19
USB to 2 game ports	$35

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Windows XP Home oem

With Windows XP Home Edition, you have the freedom to experience all that your computer and the internet have to offer. With genuine speed and serious stability, this is the operating system home users have been waiting for.

**oem software purchase with system only*

$129

Windows XP Pro oem

For businesses of all sizes, and for home users who demand the most from their computing experience, Windows XP Professional includes all the features of Windows XP Home Edition, as well as premier security and privacy features, advanced recovery options, an improved ability to connect to large networks and more.

**oem software purchase with system only*

$209

Windowx XP Pro X64 oem

Windows XP Professional x64 runs on x64 processors. 64-bit native applications can deliver more data per clock cycle, making them run faster & more efficiently. It supports up to 128MB RAM & 16 terabytes of virtual memory, enabling applications to run faster.

**oem software purchase with system only*

$209

Windows XP Media Center 2005 oem

Windows XP Media Center Edition 2005 combines a powerful home PC with a digital entertainment system. It's the most advanced version of Windows you can get for a home PC, and lets you create and manage all your digital entertainment with one remote control.

Remote Control: $49

$169

Vista Home Basic oem

Windows Vista Home Basic is the edition of Windows for basic home computing needs. If you only want to use your PC for tasks like browsing the Internet, using e-mail, or viewing photos, then Windows Vista Home Basic may be the right edition for you.

**oem software only purchase with system*

$129

Windows Vista

Vista Home Premium oem

Windows Vista Home Premium delivers the productivity and entertainment that you need from your PC at home or on the go. It includes Windows Media Center, and that makes it easy to easier to enjoy your digital photos, TV and movies, and music. Plus, you'll have the peace of mind of knowing that your PC has a whole new level of security and reliability.

32bits / 64bits

$159/169

Windows Vista

Vista Business oem

Windows Vista Business is the first Windows operating system designed specifically to meet the needs of small businesses. You'll empower your entire business to work more efficiently with a stunning and improved, simple-to-use interface that makes it easier to search and find the information you need quickly and easily, both on your PCs and on the web.

32bits / 64bits

$199/209

Windows Vista

Vista Ultimate oem

Windows Vista Ultimate offers all of the features found in Windows Vista Home Premium, including Windows Media Center, Windows Movie Maker with high-definition support, and Windows DVD Maker. It also offers all of the features found in Windows Vista Business, including business networking, centralized management tools, and advanced system backup features. And Windows Vista Ultimate has all of the new security and data protection features that help take Windows Vista to a whole new level of dependability.

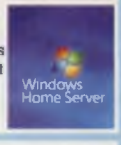
32bits / 64bits

$269/279

Windows Vista

Microsoft Home Server + 10 Cals oem

• Win Home Svr helps users pull together & protect all family's files in a single, central location that makes sharing easy • Features include automatic daily backups & full system restore • Share photos, music, movies & other files from a single, central location • Win Home Svr is a smart hub that serves as a central media library that everyone can view & add to



$229

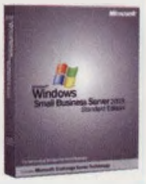
Window Server Standard 2003 oem

Windows Server Standard 2003 R2 with SP2 includes 5 Cals 32bits, includes all the functionality customers need today from a Windows server operating system to do more with less, such as security, reliability, availability, and scalability.

$999

Small Business Server Standard 2003 oem

Small Business Server Standard 2003 R2 + 5 Cals 32bits, Max. 75 Users Includes Win Server 03, Sharepoint, Fax Service and Exchange Server 03. Includes 5 CALS (User or device).



$629

Office Home and Student 2007 Academic

Office Home and Student 2007 provides software essentials that enable home PC users to easily create great-looking documents, spreadsheets, and presentations, and manage their notes.

Office Home & Student 2007 MLK: $159

$189

Office Basic 2007 MLK*

Microsoft Office Basic 2007 is the essential, preinstalled software suite for homes and small businesses with new computers that enables you to quickly and easily create great-looking documents and spreadsheets and manage e-mail. The latest release features a new streamlined user interface that exposes commonly used and familiar commands, enhanced graphics and formatting capabilities that enable you to create high-quality documents, new time management tools to help manage your schedule, and more reliability and security.

** MLK: Medialess License kit, purchase with system only*

$219

Microsoft Office 2007

Office SBE 2007 MLK*

Office Small Business 2007 is a complete set of productivity and contact management tools to help you accomplish routine tasks quickly, efficiently manage customer and contact information in one place, and produce professional-quality marketing communications and campaigns in-house. - Powerful and easy-to-use suite of productivity and contact management software features new tools to help you save time, stay organized, and deliver better customer service.

** MLK: Medialess License kit, purchase with system only*

$289

Microsoft Office 2007

Office Pro 2007 MLK*

Microsoft Office Professional 2007 is a complete suite of productivity and database software that will help you save time and stay organized. Powerful contact management features help you manage all customer and prospect information in one place. Develop professional marketing materials for print, e-mail, and the Web, and produce effective marketing campaigns in-house. Create dynamic business documents, spreadsheets, and presentations, and build databases with no prior experience or technical staff. You will learn new features rapidly using improved menus that present the right tools when you need them.

$379

Microsoft Office 2007

Office Pro 2007 Academic

Office Professional 2007 helps professionals work faster, stay organised, and manage contacts and customer information in one place.
Office Professional 2007 academic applications included:

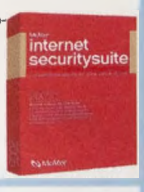
- Word 2007
- Excel® 2007
- PowerPoint® 2007
- Outlook w/Business Contact Manager
- Publisher
- Access™

$239

Macfee Internet Security 2008 oem

McAfee Internet Security Suite 2008

- Prevents viruses & hackers from infecting & invading your PC
- Stops unwanted, inappropriate and malicious email
- Protects against spying and pop-up ad programs
- Helps stop identity theft



$29

Norton Internet Security 2008 oem

Norton Internet Security 2008 provides essential protection from viruses, hackers, and privacy threats. Norton™ Personal Firewall keeps personal data in and hackers out. And Norton™ Privacy Control, AntiSpam™, and Parental Control safeguard you from other common online risks.

Norton Anti-Virus 2008 $39

$59

Norton Ghost V12

Creates a complete backup of a hard drive; easy to use, even for novices; supports encryption. Norton Ghost 10's usability and feature enhancements include data encryption and better tools for managing backed-up data. These make it a unique and powerful backup application, even for novice users.

$99

PC Cillin Internet Security 2008 oem

Trend Micro™ PC-cillin™ Internet Security provides comprehensive and easy to use protection from viruses, hackers, and other Internet-based threats. Its new advanced features go far beyond standard antivirus and firewall protection.

$39

Norton AntiVirus 2008 3User / 5User

Norton Antivirus 2008 3 or 5 User features:

- Blocks spyware automatically • Detects & removes viruses & worms
- Prevents virus-infected emails from spreading • Automatic & fast scanning to detect & remove hidden viruses or spyware

3 User / 5 User

$89/119

Norton 360 3User/ 5User

Norton 360 • removes viruses from email & instant messages • Blocks Internet worms at point of entry • Stops spyware from tracking users online • Authenticates popular shopping & banking Web sites • Protects users from phishing sites • Discovers new files & backs up that data automatically

3 User / 5 User

$109/159

MYOB Accounting V17 oem

MYOB Accounting version 17:

- Keep track of the goods you buy and sell
- Manage your contact information and interactions
- Record purchases and control your payables
- Generate current and future budgets

**oem purchase with system only*

$249

MYOB Accounting Plus V17 oem

Business, payroll and timemanagement software, MYOB Accounting Plus makes it easy to track and charge for your time and manage your inventory, and provides easy access to powerful profit-building information about your business.

**oem purchase with system only*

$369

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Adobe Acrobat 8 Professional

Adobe® Acrobat® 8 Professional software enables business professionals to reliably create, combine, and control Adobe PDF documents for easy, more secure distribution, collaboration, and data collection.

Academic Version
$189
$569

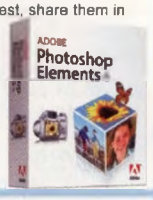
Adobe CS3 Design Premium Win FPP

Adobe CS3 Design Premium Content: Adobe Bridge CS3, Version Cue CS3, Device Central CS3, Stock Photos Acrobat Connect, InDesign CS3 Photoshop CS3 Extended, Illustrator CS3, Flash CS3 Professional, Dreamweaver CS3, Acrobat 8 Professional

Academic Version $729
$2499

Adobe Photoshop Elements 6.0

Adobe Photoshop Elements 6 software combines power and simplicity so you can make your photos look their best, share them in imaginative ways, and easily find and view all your photos and video clips.



Academic Version
$99
$139

Adobe Photoshop CS3

Adobe Photoshop CS3 accelerates user's path from imagination to imagery
• Ideal for photographers, graphic designers, and web designers, the pro std delivers new features such as automatic layer alignment & blending that enable advanced compositing

Upgrade Version
$289
$869

Adobe Photoshop Extended CS3

• Experience smooth handling of 3D & motion-based content • Render and incorporate 3D images INTO 2D composites • Stop time with easy editing of motion graphics on video layers

Academic Version
$369
$1299

Adobe Premiere Elements 4.0

Create and share great-looking movies in minutes with Adobe® Premiere® Elements 4 software. Get started quickly with easy movie-making options; show your style with amazing audio and video effects; and share your movies virtually anywhere.

Academic Version
$99
$149

Adobe Photoshop Elements 6 & Premiere Elements 4

• Save time with centralized access to photos & video clips
• Put photo slide shows in motion
• Do more with individual video frames
• Make photos look their best with easy-to-use editing & compositing tools

Academic Version
$139
$199

Adobe Dreamweaver CS3

Design, develop, and maintain websites and web applications. Dreamweaver CS3 offers both a visual layout interface and a streamlined coding environment. Intelligent integration with related Adobe software ensures an efficient workflow across your favorite tools.

Academic Version
$259
$549

Microsoft Office Visio Professional 2007

Office Visio Professional 2007 makes it easy for IT and business professionals to visualize, analyze and communicate complex information, systems and processes with clear, compelling diagrams.

Academic Version
$249
$869

Nero 8 Retail

Nero 8, the newest version of the worlds best-selling multimedia suite, brings the digital world to your PC. Now its easy to organize and manage all your multimedia files, as well as create and edit new digital content. Neros sleek design and user-friendly tools make completing projects fun and enjoyable.

$139

Roxio Easy Media Creator Suite 10

Roxio Easy Media Creator Suite 10: Capture streaming Audio, sync digital media with iPods and more, create backups, slideshows & loads more features. Certified Vista compatible.

$139

Sony Vegas Movie Studio8

Sony Vegas Movie Studio 8:
• Edit standard definition video including DV, DVD, and HDD • Create and share movies and slideshows • Produce videos for popular online sharing sites • Make professional-looking DVDs • Learn as you go with Show Me How tutorials • Import music from CDs and MP3s

$149

Laptop Accessories

Antec Notebook Cooler

Antec Notebook Cooler, USB Powered, Dual 80x15mm double bll bearing fan, 2-speed Fan Switch (1350RPM/1800RPM), Fan Specifications: Low - 1350RPM Speed, 8.5CFM Airflow, 23dBA Noise, High - 1800RPM Speed, 13CFM Airflow, 27dBA Noise,
19 inch USB Cable
Silver or Black Color available

$49

Belkin USB2.0 Dock Station (F5U216AU)

Belkin USB 2.0 Dock Station
The Hi-Speed USB 2.0 DockStation lets you use just two cables to connect parallel, serial, VGA, and USB 2.0 devices to your notebook.

$99

IBM Thinkpad Port Replicator II (74P6733)

• Apply for all Thinkpad X, T, R and A series models except Re series
• Provide easy cable management
• Helps maintain the mobility afforded by a Thinkpad system
• Offers pass-through connection for Gigabit Ethernet, USB2.0 and DVI ports

$149

COOLER MASTER NotePal W1

• Efficiently reduce the temperature of notebook, Enhance notebook stability and durability
• Ergonomic design offers best in comfort and productivity
• All Aluminum curvy design
• Super silent
• Silver or Black Color

$49

Kensington Notebook Dock with Audio 33241

• Multi-function port replicator provides 5.1 audio jacks, parallel and serial ports, and three USB 2.0 ports.
• 5.1 surround sound support includes rear, front, and centre speaker outputs.
• Unique wedge design

$119

Kensington Laptop Desktop USB Stand 60148

• Space saving, money-saving solution eliminates the need for extra monitor
• Built-in 4 port USB 2.0 hub provides one-time connection for computer accessories.

$119

Logitech Alto Cordless Notebook Stand(920-000808)

• Elevates and extends user's notebook display for optimal viewing comfort • Cordless keyboard for effortless typing comfort • Convenient 3-port USB hub increases users connectivity • Works with virtually all notebooks up to 15.4 inches

$149

FSP Universal Notebook Power Adapter

Providing power solution for your mobile computing needs, available in: 65W, 90W, 120W

NB65 $39
NB90 $69
NB120 $89

Targus 15.4" Traditional Notepac Notebook Case

Targus CN01 Notebook Case suitable for all popular notebooks.
Size: 36x28x6cm. Fully Expanded to 38x30x12.5cm.

$49

Logitech Kinetik 15.4" Briefcase

The Kinetik 15.4 Briefcase protects user's notebook with a lightweight exo-shell casing and padded sleeve

$89

Belkin Notebook Mobility Kit 15.4" (F8E935)

Belkin Notebook Mobility Kit 15.4" Notebook Include: Notebook Bag + Miniscroller Mouse + USB Hub

$49

hp Notebook Mobility Pack EV098PA

• Kit Contents: Evolution Extra Lite Carry Case, 2.4GHz Wireless Rechargeable Mouse, HP 256MB USB Flash Drive
• Suits: HP Compaq nx6120 Notebook PC
• Light weight & compact

$59

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D-Link USB Bluetooth Adaptor DBT-122

- Connect with Bluetooth Enabled Devices
- Works with PC & Mac
- Seamless Wireless Personal Area Network (PAN) Connectivity
- Operation range - 100 metres (33ft) range

$55

D-Link KVM Switch 2 or 4port DKVM-2K/ 4K

- Supports Up to 2048 X 1536 Resolution
- Includes Two 6' Standard KVM Cables
- Convenient Select Button and Hot-Keys
- Plug and Play

DKVM-2K 2port
DKVM-4K 4port

$49/89

Skymaster KVM Switch 2 or 4 Ports

- Support Win 95/98/2000/ME/XP/NT, Unix, Linux
- Hot Plug - add or remove connected PCs for maintenance without powering down the KVM Switch or PCs.
- Very high video quality - up to 1920 * 1440

$39/59

Aten PS2 KVM Switch with Audio CS62A/CS64A

Aten Petite 2 or 4 Port PS2 KVM Switch with Audio has a handy design integrating with 4 feet of cables. It can control 2 or servers via a single console.

CS62A 2port
CS64A 4port

$49/79

Aten USB KVM Switch with Audio CS62U/CS64U

Aten Petite 2 Port USB KVM Switch with Audio has a handy design integrating with 6 feet of cables. It can control 2 or 4servers via a single console.

CS62U 2port
CS64U 4port

$59/99

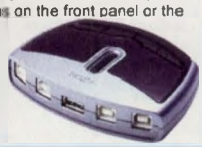
Aten 4 Port USB KVM Switch Hub CS1734A

CS1734A KVM Switch has built-in USB on each of the front and rear panels and audio signal connectors. It allows users to control the computer and peripheral devices via a signal console at ease.

$169

Aten US421 4 Port USB 2.0 Peripheral Switch

US421 allows 4 computers to share the same USB peripheral under the foundation of one-at-a-time. Users can switch the computer controlling the peripheral from the simple hotkeys or buttons on the front panel or the control software on Windows. It is ideal for SOHO environments.



$59

Aten VS-92A 2 Port Video Splitter

The VS92A Video splitter duplicates and boosts the video signal from one input to 2 outputs.It provides greater bandwidth and video resolution as well as extends the transmission distance up to 210 feet making it excellent for public broadcasting.

$59

Adaptec AAR 1210SA Serial ATA RAID Card

The Adaptec Serial ATA RAID 1210SA provides cost-effective, high-performance storage connectivity and data protection for desktops, workstations and sub-entry servers.

$79

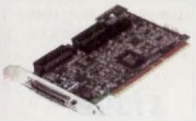
Adaptec AAR 2420SA Serial ATA RAID Card

Adaptec SATA II technology delivers data transfer rates with 3 Gb/s while also supporting 1.5 Gb/s (SATA I). The Adaptec Serial ATA II RAID 2420SA card is a four-port controller that supports SATA or SATA II direct attached disk drives. It features standard RAID 0, 1, 5 and 10 as well as an optional Advanced Data Protection Suite.

$459

Adaptec ASC29160 Ultra SCSI Controller

The Adaptec SCSI Card 29160 is tailored for entry to mid-range server environments. It delivers the maximum throughput for a single channel Ultra160 SCSI card by using a 64-bit PCI interface. It also provides the ideal connection to Ultra160 SCSI (LVD) hard disks and devices.



$289

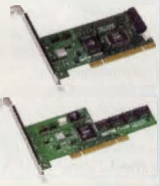
Adaptec ASC29320 Ultra SCSI Controller

The Adaptec SCSI Card 29320A-R is a half-size, 64-bit 133 MHz PCI-X, single-channel Ultra320 SCSI card with integrated HostRAID. The Adaptec 29320A-R includes a legacy SCSI connector and is a cost-effective RAID 0, 1 and 10 solution.

$269

Promise FastTrak TX2300 / TX4310

Cost-effective RAID 0/1 controller with SATA 3Gb/s drive support for motherboards with a PCI interface, 32-Bit / 66 MHz.

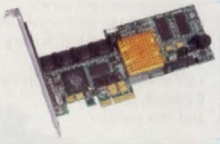


TX2300
2ports, Raid 0/1
TX4310
4ports, Raid 0/1/10

$119/199

Promise EX8350 8port SATA2 PCIE

- 8-Port Serial ATA (SATA) RAID controller with 3.0 Gb/s per port
- PCI-Express x 4 Host Bus Interface
- Support RAID levels 0, 1, 5, 6*, 10, and JBOD
- Linux open source driver support



$549

Skymaster PCI ATA133 IDE RAID Controller

- PCI Bus Master DMA Transfer Rate up to 133MB/S
- Supports 4 IDE Hard Disks with 133MB/S Transfer Rate
- Supports RAID 0, 1, 0+1

Non Raid IDE Controller: $39

$39

Skymaster PCI Serial ATA 2/4 port Controller

- Dual independent DMA channels with 256KB FIFO per Serial-ATA channel, transfer rate up to 1.5Gb/s
- Serial ATA Specification Revision 1.0 compliant
- Internal Serial-ATA port x 2

2port / 4port

$39/49

PCMCIA to USB2 or 1394 Adaptor

- 3 Ports USB 2.0 or 1394 CardBus
- Provides 3 External Ports to Laptop
- Driver Supports: Windows 98 / ME / 2000 / XP

$29

PCMCIA to USB2 & 1394 Combo Adaptor

- PCMCIA CardBus Interface with Power Management
- Provides two USB Root ports with high-speed 480Mbps
- Provides one 1394 port and one mini-1394 port with 400, 200 and 100 Mbits/s traffic

$45

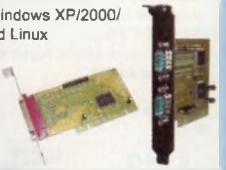
Skymaster USB2.0&1394 COMBO PCI Card

- Chipset: 1394-VIA VT6306, USB 2.0-VIA VT6202
- Speed: 1394 Asynchronous and Synchronous data transfer 400/200/100Mbps USB each port 480M/bps
- O/S Supports: Win 98SE/ME, Win 2000/XP

$35

Skymaster 2 ports Parallel / Serial PCI Card

- Total Plug and Play, slide bars PCI 32bit
- Give two extra two parallel or serial ports to your PC
- Drivers for Windows XP/2000/ NT, 98/95 and Linux



$29

Skymaster 1394 Adaptor

- VIA VT6306 chipset
- Easy plug-n-play connectivity and set-up
- IEEE 1394 data transfer rate up to 400 or 800Mbps
- Supports Windows 98SE, ME, 2000/XP and Mac OS

Firewire 400 / 800

$29/69

AL TECH Portable MPEG4 Player MG-25

An entertainment product of tomorrow. This portable media player allows DivX, MPEG4, DAT, Xvid, MP3, OGG, WMA and JPEG play back from any 2.5"notebook sized hard disk. A 2.5" notebook hard disk is required.

$129

AL TECH Portable Media Player ALT-MG35

Mediagate MG-35 is a high-performed, DMA with 3.5-inch HDD inside. It can be configured in collaboration with web-based movie distributor as a set-top box or media gateway to access, play and/or download the legal movies from the website directly without home PC.

$189

AL TECH Wireless Portable Multimedia Player MG-350HD

- Watch High Definition movies on Standard Definition TVs
- Built-in hardware zoom
- Featuring NDAS networking technology
- 11g wireless connection and 10/100 Ethernet port
- Ability to wirelessly stream media without a HDD

$289

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D-Link DCS-900
IP Camera
- Web-based Remote Access Using Any Java Enabled Web Browser
- 10/100Mbps Fast Ethernet Connection
- Manual, Motion Triggered, or Scheduled Recording Options

$229

D-Link DCS-3220
IP Camera with 2-Way Audio
- Monitor Your Home or Office Over the Internet
- Listen and Talk with 2-Way Audio1
- 4x Digital Zoom2 for Close-up Viewing
- Built-in Motion Detection with E-mail Notification

$559

D-Link DCS-6620
IP Camera
- Motorized Pan/Tilt/Zoom
- User-Selectable Compression Codec - MJPEG and MPEG-4
- 2-Way Audio Support
- Extreme Low Light Sensitivity
- Smooth Video Recording of Up to 30 FPS

$1139

D-Link DCS-6620G
Wireless IP Camera
- 802.11g Wireless Connectivity
- User-Selectable Compression Codec - MJPEG and MPEG-4
- 2-Way Audio Support
- Extreme Low Light Sensitivity
- Smooth Video Recording of Up to 30 FPS

$1369

AXIS 207 IP Camera
Axis 207 compact indoor IP network camera with M-JPEG and MPEG4. compression choice. Indoor Use. Up to 25 fps at 640x480, 1.0 Lux Min Illumination. I/O port for device attachment

207MW Wireless
$599

$399

LINKSYS WVC54GC
- Sends a high-quality live audio/video stream to your network wirelessly over 802.11g – viewable from anywhere
- Built-in stand-alone web server, no PC necessary
- Security Mode automatically sends email alerts with video clips upon motion detection
- Supports up to four simultaneous remote users

$169

LINKSYS WVC200
- Up to 30fps at 640 x 480 resolution.
- High-quality live video stream wirelessly.
- Pan, Tilt, Digital Zoom functionality.
- Built-in stand-alone Web Server, No PC necessary.
- Security Mode sends email alert if motion detected

$349

NetComm NS370W
Netcomm NS370W MyLanCam Colour Internet IP Camera, Ethernet & 802.11g WIFI, Built in web interface, Supports up to 16 Cameras & Motion Detecti
This IP network camera is ideal for home security or small business surveillance and with the in-built web server can be remotely monitored over the Internet.

$289

Voice Over IP

LINKSYS PAP2 Phone Adapter with 2 Ports
- Enables high-quality feature-rich telephone service through your cable or DSL Internet connectioncable or DSL internet connection.
- Two standard telephone jacks for phones or fax
- Clear sounding voice service

$69

LINKSYS SPA3102
VOIP Analogue Phone
- Automatically routing local calls from mobile. phone and landlines to VOIP service.
- Reduce international & long distance phone charges.
- Calls can be sent via traditional carrier via FXO.
- interface - good in power outs or internet is down

$99

LINKSYS SPA942
Business PoE Phone
- Full featured Power over Ethernet IP Phone.
- 4 lines standard with firmware 5.1.10 and later • Back-lit Hi-Resolution Display.
- 2 port switch & 2.5 mm head-set port
- Optional Power Supply PA100 available

$169

LINKSYS CIT400 DUal Mode Skype Phone
- Standard Cordless Phone with Skype support.
- Use it as a standard DECT cordless phone. • Skype to regular phone lines (with SkypeOut). • 120 hours standby time, 6 hours talk time.
- Graphical color LCD display with status indicators

$169

LINKSYS WRTP54G
Wireless-G Router
- All-in-one Internet-sharing Router, 4-port Switch, and 54Mbps Wireless-G (802.11g) Access Point • Shares a single Internet connection and other resources with Ethernet wired and Wireless-G and B devices • Two standard phone jacks • High security

$119

NETGEAR TA612V
Broadband Voice Adapter
- Turns your Broadband Internet Service into a Telephone
- 2 ports to connect analogue phones & fax
- Shares Internet connection via Ethernet ports & Broadband modem
- Prioritises voice traffic for optimum QoS
- Call Features include: Called ID, Call Waiting & Voicemail

$99

NETGEAR DG834GV
Wireless ADSL2+Modem Firewall Router VOIP
DG834GV combines an ADSL2+ Modem, Router, 10/100 Wired LAN Switch, 802.11g Wireless Access Point, Voice-over-IP (VoIP), and SPI Double Firewall.

$189

NetComm NB9W MyNet Gateway
The NB9W MyNetGateway delivers an all-in one Integrated Access Device. It includes an ADSL2+ modem, 4-port Layer 3 Quality of Service (Qos) router. 2x FXS ports for VoIP equipment, 1xFXO port for PSTN lifeline backup and 802.11g wireless in one device!

$209

BILLION BiPAC 6404VGP
VoIP Firewall Router
- Broadband sharing with fast Ethernet switching • Voice-over IP - compliant with SIP standards • Two FXS ports for connecting to regular telephones
- One FXO port for voice calls via PSTN Fixed-line • Gateway "Least Cost Routing" support

$169

BILLION 7401VGPM
VoIP / ADSL2+ / Router with 4-port Switch
- Voice over IP compliant with SIP standard
- High speed Internet Access with ADSL2/2+
- SOHO Firewall Security with DoS Prevention and SPI

$159

BILLION 7404VGPM
VoIP / ADSL2+ Firewall Router with PSTN
- Voice over IP compliant with SIP standard
- High speed Internet Access with ADSL2/2+
- Gateway - Least Cost Routing
- SOHO Firewall Security

$219

BILLION 7404VGOM
VoIP / ADSL2+ VPN Firewall Router with PSTN
- Voice over IP compliant with SIP • Gateway
- VPN with powerful 3DES
- High speed Internet Access with ADSL2/2+
- SOHO Firewall Security with DoS Prevention and SPI

$259

BILLION BiPAC 7300
ADSL2+ Firewall Router
Easy to set up to surf the net! Billion's BiPAC 7300(G) series is an all-in-one compact package of ADSL2+ router perfectly designed for home and SOHO users to enjoy the mobility and faster speed when using ADSL Internet connection.

$69

BILLION BiPAC 7300G
ADSL2+ Firewall Router
Billion's BiPAC 7300(G) series is an all-in-one compact package of ADSL2+ router. It lets you access high-speed ADSL Internet connection, even faster with advanced ADSL2+ capability with downstream rate up to 24Mbps.

$109

BILLION BiPAC 7402LM
ADSL2+ / Router with Switch
- High-speed Internet Access with ADSL2+ up to 24Mbps
- SOHO Firewall Security with DoS Prevention and SPI
- Parental Control with URL Blocking and Packet Filtering

$139

BILLION 7402R2M
ADSL2+VPN Firewall Router
- VPN with 3DES is up to 3.5 Mbps
- SOHO Firewall Security with DoS Prevention and SPI
- Parental Control with URL Blocking and Packet Filtering
- High-speed Internet Access with ADSL up to 8Mbps

$169

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POS Equipment

PSC QS2500 Scanner
For retail, office, and light-industrial applications, the QS2500's 200 scans-per-second linear imager scan engine provides snappy reading performance and a mid-range depth-of- field.

PS/2 or USB

$199/219

PSC QS1000 Scanner
Sleek Design and Powerful Performance. A Winning Combination in an Affordable Bar Code Scanner. The QS1000 Scanner offers you all the benefits of laser scanning at what used to be CCD prices.

PS/2 or USB

$269/289

PSC QS6500 Scanner
Fast, Ergonomic Scanning of All Supported Symbologies.
The PSC QS6500 includes aggressive scanning performance, an ergonomic feel, excellent field depth and fast 1D and PDF bar code reading.

PS/2 or USB

$319/339

PSC PSSR-0000 PowerScan Scanners
Even in the most harsh working environments, you can depend on the PowerScan scanner to keep on working. PSSR-0000, standard range, undecoded.

PS/2 or USB

$629/649

DENSO GT10 Bluetooth Smart Scanner
- Bluetooth 70cm scan distance
- Long range CCD
- Fast reading and decoding
- Ultra bright scanning beam
- Multi colour LED
- Vibrate and beep functions

$759

DENSO Portable Scanner G8044D
Denso Distance Scan model up to 50cm, 4 Mb RAM
- Large liquid crystal display of 128 x 64 dot
- Wide key pitch 13.7mm

$979

Zebra LP2844 Direct Thermal Barcode Label Printer
Reliable desktop printer featuring USB & optional network interfaces

$559

Zebra TLP2844 Thermal Transfer Barcode Label Printer
Reliable desktop printer featuring USB & option- network interfaces

$699

POSIFLEX FPP5600DP Impact Reciept Priner
Paper Tear Bar, 42 column Dot Matrix, Approx 3.5LPS, 20kb Input buffer. Up to 3 ply print, ESC/POS Command Compatible.
Paper Roll: 76x76mm box of 24: $29

$359

POSIFLEX FPP7000U Thermal Reciept Priner
High Speed, up to 180mm per sec, Auto Paper Cutter, Drop & Load Paper loading, Stores Graphic Logo, USB Interface.

$539

POSIFLEX FCR4100 Cash Drawer
Innovative Screwless Secured Design, three position lock, Cheque slot, supplied with 1 metre modular connector (RJ12) cable to connect Posiflex, Epson, Star, Axiohm & current Citizen printers.

$159

POSIFLEX FCR4101 Cash Drawer
Smart externally powered POS cash draw, serial and parallel pass-through capabilities, include plug-in external power supply, 1.8m cable and cash insert.

$249

POSIFLEX FCD2860P Barcode Scanner
CCD contact technology, 80mm reading aperture, 0-30mm scanning distance, Auto discrimination, Manual trigger, Beeper & LED indicator.

PS/2 or USB

$149/159

POSIFLEX FCD3830P
CCD long range technology, ergonomic and light weight design, wide reading aperture, 0-300mm scanning distance, Auto discrimination, Manual trigger, Beeper & LED indicator.

PS/2 or USB

$189/199

Symbol LS-2208 Laser Scanner
The high-value LS2208 hand-held scanner offers superior performance, excellent reliability and user-friendly ergonomics to create a more productive mobile environment.

$289

Symbol LS-9203 Omni Directional Bench Scan
The LS9203's high-performance handheld and presentation scanning capability enables point-of-sale employees to work faster and more accurately.

$409

EPSON ETMU220D Impact Receipt Printer
Epson Impact receipt printer, 9-pin dot matrix, includes power cable and data cable, USB or parallel interface.

$409

EPSON ETMU220B Impact Receipt Printer
Epson Impact receipt printer, auto paper cutter, 9-pin dot matrix, includes power cable and data cable, USB or parallel interface.

$529

EPSON ETMT88U Thermal Receipt Printer
Epson thermal receipt printer, high speed up to 150mm per sec, auto paper cutter, 42/56 column, drop & load paper loading, USB or parallel interface.

$579

EPSON ETMT90 Thermal Receipt Printer
Epson thermal two color receipt printer, high speed up to 170mm per sec, auto paper cutter, 42/56 column, drop & load paper loading, parallel or serial interface.

$729

Tape Drives

SONY SATA 40-104GB Turbo Tape DX470VRB
- Format: AIT-1 Turbo,
- Capacity: 40Gb (Uncompressed), 104Gb (Compressed),
- Transfer Rate: 6MB/s (Native),
- Interface: SATA

$899

SONY SATA 80-208GB Turbo Tape DX570VRB
- Format: AIT-1 Turbo,
- Capacity: 80Gb (Uncompressed), 208Gb (Compressed),
- Transfer Rate: 12MB/s (Native),
- Interface: SATA

$1429

SONY IDE 40-104GB Turbo Tape SDX460VRB
- Formats Supported: AIT-1 Turbo, AIT-E Turbo, AIT-1.
- Media Supported: 8mm 230m (with or without MIC).
- Native Capacity: 40GB.
- Native Storage Speed: 6MB/S.

$929

SONY IDE 80-208GB Turbo Tape SDX560VRB
- Formats Supported: AIT-2 Turbo, AIT-E Turbo, AIT-2.
- Media Supported: 8mm 230m (with or without MIC).
- Native Capacity: 80GB.
- Native Storage Speed: 12MB/S.

$1459

HP StorageWorks DAT72 USB DW026A
HP StorageWorks DAT72 36-72GB USB Internal Drive combines the reliability and cost-effectiveness of DAT with the universal plug-and-play capabilities of the USB 2.0 interface, ideal backup for Small Business

$759

HP StorageWorks DAT72 USB DW027A
HP StorageWorks DAT72 36-72GB USB External Drive combines the reliability and cost-effectiveness of DAT with the universal plug-and-play capabilities of the USB 2.0 interface, ideal backup for Small Business

$859

Seagate Quantum GoVault 800 USB QR1202-B5-S2D04
GoVault 800 Data Protection Solution is a complete disk-based solution that includes a Dock, two 40GB Cartridges (Onsite-Offsite) and Data Protection Software

$559

Seagate Quantum DAT72 Internal CD72SH-SSTU
Quantum CD72SH-SSTU DAT72 Internal Drive, 36/72GB, SATAII with USB2.0 Convertor, Veritas Backup Software, Up to 25 GB/hr backup speed, Backward compatible with DDS-3 and DDS-4 media

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December 2007

BONUS 512MB MEMORY

Check out our range! We're sure to have the perfect gift for the tech person in your life.

Linh Thai, Sales Consultant, Hawthorn, VIC

Satellite Pro A200 TOSHIBA

Windows Vista Home Basic | intel

My Book Essentials 750GB Hard Drive

NEW

LESS THAN 40¢ PER GB

Western Digital

$299 | V3313 | p. 21

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SAVE $30

$369 | V2279 | p. 16

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320GB HDD

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S9579 | p. 13
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Uniden SOUNDS BETTER

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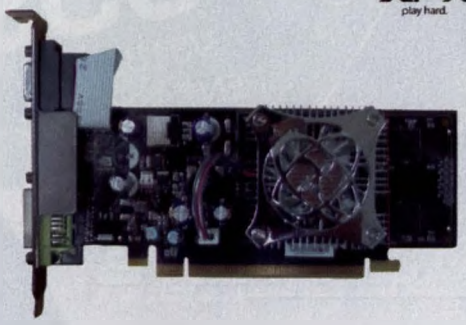
XFX play hard.



8400GS 256MB PCIe Graphics Card - DVI/VGA/TV

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MA 15+ Strong Violence

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Microsoft

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$79.95
V2358

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CONNECT YOUR NINTENDO WII OR DS DRIVERS FOR PS2 AND PSP COMING SOON

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Here's some of the things I'm hoping to see under the tree this year!

Quoc Mai
Store Person
North Ryde, NSW

For the jetsetter

SanDisk

Cruzer Micro U3 4GB ReadyBoost
$69.95 | U8760

HIGH CAPACITY MICRO SD CARD

TOSHIBA

4GB Micro SDHC Card
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$99
V1525

iPod Shuffle 1GB Silver

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For the professional

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$119
R5401

WPN824 RangeMax Wireless G Router

Western Digital

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My Book Essentials 320GB External Hard Drive

$149 | U5595

Western Digital

Passport 160GB Portable Hard Drive

$179 WHITE | V1047 BLACK | U5600 RED | V1048

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$164 | U7713

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HUGE 8GB CAPACITY

SanDisk

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8GB Cruzer Micro U3 USB Drive

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For the trendsetter

Logitech

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V1349 | BLACK
V1350 | WHITE

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LIMITED EDITION

SanDisk

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$175 | V2314

PENTAX

NEW @ HT

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Optio E40 8.1 MP Digital Camera

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20% OFF ADOBE PHOTOSHOP ELEMENTS 6 IF PURCHASED WITH THIS CAMERA, SEE P. 24

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My Du@l Radio 700 Wireless Media Server/MP3 Player

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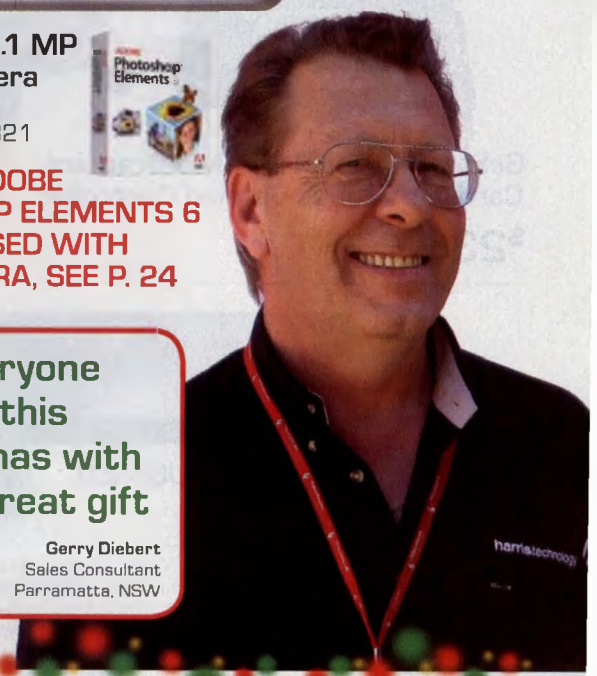
Gerry Diebert
Sales Consultant
Parramatta, NSW



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Logitech

Harmony Advanced Universal Remote 1000i

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NAS200 Network Storage System with 2 HDD Bays

$249 | V0668

BONUS DWA-140 USB ADAPTER[2]

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BONUS

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XFX
play hard

BONUS

GeForce 8600GT 256MB Graphics Card with Bonus Gaming Controller

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16GB Pocket Disk Drive USB 2.0

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X223W 22" Widescreen LCD Monitor

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For the trendsetter

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iPod Classic Video 160GB

$479

SILVER | V1516 BLACK | V1521

Authorised Solutions Reseller

iPod Nano Video 8GB

$279

SILVER | V1546 BLACK | V1518

kaiserbaas

SAVE $100

Digital Photo Frame 10" 256MB

$299

V1321

For the student

BONUS DVD BURNER[3]

SONY

BONUS

Vegas Movie Studio Platinum 8

$219 | U9445

LIMITED STOCK

SAVE $100

acer

CELERON 420

1GB RAM

160GB HDD#

Aspire M1600 Desktop

$499

U9939

Satellite Pro A200

TOSHIBA

Great Value, Great Gift Idea

- Intel Celeron M 520 1.6GHz
- 2 x 512MB DDR2 RAM (inc Bonus RAM)
- 80GB# Hard Drive
- DVD SuperMulti ±Dual Layer
- **15.4" WXGA CSV Widescreen**
- Wireless LAN 802.11a/b/g
- Up to 4 hours of battery life
- Weighs 2.7kg
- Windows Vista Home Basic
- 1 year warranty

LIMITED STOCK

$699 | V3135

RENT $8.09/wk*

BONUS 512MB RAM[2]

6720s

- Intel Celeron M 550 2GHz
- 1GB DDR2 RAM
- 80GB# Hard Drive
- DVD SuperMulti ±Dual Layer
- **15.4" WXGA Widescreen**
- Wireless LAN 802.11a/b/g
- Weighs 2.5kg
- Windows Vista Business
- 1 year warranty

PREORDER NOW FOR EARLY DECEMBER DELIVERY

$899 | V3365

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Satellite Pro A200

TOSHIBA

- Intel Pentium Dual Core T2080 1.7GHz
- 2 x 512MB DDR2 RAM
- 120GB# Hard Drive
- DVD SuperMulti ±Dual Layer Drive
- **15.4" WXGA Widescreen**
- Wireless LAN 802.11a/b/g
- Weighs 2.7kg
- Windows Vista Home Premium
- 1 year warranty

LIMITED STOCK!

$999 | V1034

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BONUS BAG, HUB & 25 PACK DVD MEDIA

FUSION 15.4" Messenger ... change your strap, change your look

3 interchangeable coloured shoulder straps included with each case

$99 | Blond | U1065
| Olive | U9315
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Satellite Pro S200

Fantastic performance with Toshiba engineering

- Intel Core 2 Duo T7500 2.2GHz
- 2 x 1GB DDR2 RAM
- 160GB* Hard Drive
- DVD SuperMulti ±Dual Layer Drive
- **15.4" WXGA Widescreen**
- Wireless LAN 802.11a/b/g
- Up to 3 hours of battery life
- Weighs 2.9kg
- Windows XP Professional
- 1 year warranty

TOSHIBA

BONUS

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BONUS 2 year extended warranty

6710s

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- 1GB DDR2 RAM
- 120GB* Hard Drive
- DVD SuperMulti ±Dual Layer
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- Wireless LAN 802.11a/b/g
- Up to 4.25 hours of battery life
- Weighs 2.6kg
- Windows XP Professional
- 1 year warranty

BONUS

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RENT $16.81/wk*

BONUS 1GB RAM[2] & BAG

CR25GN Gold

SONY

- Intel Core 2 Duo T7250 2GHz
- 1GB DDR2 RAM
- 160GB* Hard Drive
- DVD SuperMulti ±Dual Layer Drive
- **14.1" WXGA Widescreen**
- ATI Mobility Radeon X2300 with up to 319MB HyperMemory
- Wireless LAN 802.11a/b/g
- Weighs 2.5kg
- Windows Vista Home Premium
- 1 year warranty

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Also Available in Black, Blue, Red, Pink and White

BONUS 1GB RAM[2]

Rechargeable Bluetooth Mouse

Recharge this receiver-less mouse while using it

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This great Belkin Mobility Bundle is EXCLUSIVE to Harris Technology. Designed for your mobile needs, it represents excellent value for money.

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Targus

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$49 | J2022

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Targus

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ThinkPad R61

lenovo

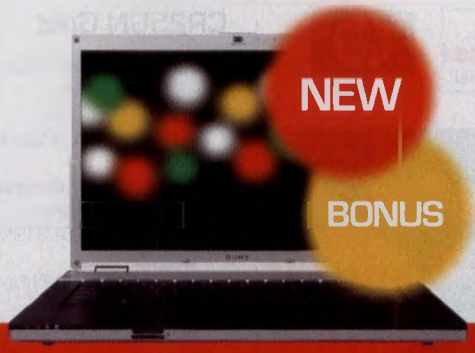
Designed & Built by World's Best Engineers

- Intel Core 2 Duo T7500 2.2GHz
- 1GB DDR2 RAM
- 160GB* Hard Drive
- DVD SuperMulti Dual Layer Drive
- **15.4" WXGA+ Widescreen**
- Intel GMA X3100 Graphics
- Wireless LAN 802.11a/g/n
- Bluetooth v2.0
- Integrated Web cam
- Up to 5 Hours of battery life
- Weighs 2.9kg
- Windows Vista Business
- 1 year warranty

$1799 | RENT $20.17/wk*
Windows Vista Business | V2258
Windows XP Professional | V2259

BONUS HARMONY 525 ADVANCED UNIVERSAL REMOTE[2]

Stylish & Powerful



VAIO FZ25GN

SONY

- Intel Core 2 Duo T7250 2GHz
- 2 x 1GB DDR2 RAM (inc bonus 1GB)
- 160GB* Hard Drive
- DVD SuperMulti ±Dual Layer Drive
- **15.4" WXGA Widescreen**
- nVidia GeForce Go 8400 with up to 383MB TurboCache
- Wireless LAN 802.11a/b/g
- Bluetooth v2.0
- Windows Vista Business
- 1 year warranty

2.7 kg | 2.5 HOUR BATTERY LIFE

$2099 | V2705
RENT $23.54/wk*

BONUS 1GB RAM[3]

Balance of Power & Portability

Portege M600

TOSHIBA

- Intel Core 2 Duo T7500 2.2GHz
- 1GB DDR2 RAM
- 160GB* Hard Drive
- DVD SuperMulti ±Dual Layer Drive
- **13.3" WXGA Widescreen**
- Wireless LAN 802.11a/g/n
- Bluetooth v2.0
- Windows Vista Business
- 3 year warranty

1.9 kg | 4 HOUR BATTERY LIFE

$2299 | V3023
RENT $24.93/wk*

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Powerful notebook with a high resolution screen

- Intel Core 2 Duo T7700 2.4GHz
- 2 x 1GB DDR2 RAM
- 160GB* Hard Drive
- DVD SuperMulti ±Dual Layer Drive
- **15.4" WSXGA+ Widescreen**
- Wireless LAN 802.11a/g/n
- Bluetooth v2.0
- Up to 5.25 hours of battery life
- Weighs 2.6kg
- Windows Vista Business
- 1 year warranty
- **Bundled with carry bag, 4 port hub, mouse and 7 in 1 retractable cable kit**

6710b

Great for the knowledgeable business user looking for something with more power

- Intel Core 2 Duo T7500 2.2GHz
- 2 x 1GB DDR2 RAM
- 120GB* Hard Drive
- DVD SuperMulti Dual Layer Drive
- **15.4" WXGA Widescreen**
- Wireless LAN 802.11a/g/n
- Bluetooth v2.0
- Up to 4.25 hours of battery life
- Weighs 2.6kg
- Windows Vista Business
- 1 year warranty
- **Bundled with carry bag, 4 port hub and mouse**

hp invent · intel Core 2 Duo · Wi Fi · Windows Vista Business · Office Professional 2007 60 Day Trial[1]

$2079 | RENT $23.31/wk*
Windows Vista Business | U9049
Windows XP Professional | U9079

$1699 | RENT $19.05/wk*
Windows Vista Business | V1263
Windows XP Professional | V1266

17" Desktop Replacement

TravelMate 7720G acer

- Intel Core 2 Duo T7500 2.2GHz
- 2 x 1GB DDR2 RAM
- 2 x 160GB* Hard Drive
- DVD SuperMulti Dual Layer Drive
- **17" WXGA Widescreen**
- ATI Radeon HD 2600 with up to 768MB HyperMemory
- Wireless LAN 802.11a/g/n
- Bluetooth v2.0
- Integrated 1.3 megapixel Orbicam
- Windows XP Professional

intel Centrino Duo · Wi Fi · Windows

3.8kg · 4 HOUR BATTERY LIFE

$2499 | V3322
RENT $27.10/wk*

● **BONUS** CARRY BAG

Business Reliability

ThinkPad T61 lenovo

- Intel Core 2 Duo T7500 2.2GHz
- 1GB DDR2 RAM
- 120GB* Hard Drive
- DVD SuperMulti ±Dual Layer Drive
- **15.4" WXGA Widescreen**
- nVidia Quadro 140M with 128MB RAM
- Wireless LAN 802.11a/b/g
- Bluetooth v2.0
- Windows Vista Business
- 3 year warranty

intel Centrino Duo · Wi Fi · Windows Vista Business

2.9kg · 4 HOUR BATTERY LIFE

$2999 | V1588
RENT $31.90/wk*

Office Professional 2007 60 Day Trial[1]

● **BONUS** HARMONY 785 ADVANCED UNIVERSAL REMOTE[2]

Compact & Stylish

VAIO SZ58GNC SONY

- Intel Core 2 Duo T7700 2.4GHz
- 2 x 1GB DDR2 RAM
- 160GB* Hybrid Hard Drive
- DVD SuperMulti Dual Layer Drive
- **13.3" WXGA LED Widescreen**
- NVIDIA GeForce Go 8400 with up to 831MB TurboCache
- Wireless LAN 802.11a/b/g
- Bluetooth v2.0
- Integrated Motion Eye Camera
- Windows Vista Business

intel Centrino Duo · Wi Fi · Windows Vista Business

1.8kg · 7 HOUR BATTERY LIFE

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● **BONUS** 2GB MicroVault

iMac All-in-one

Authorised Solutions Reseller

- Intel Core 2 Duo 2.4 GHz (Dual-Core)
- 1GB DDR II SDRAM - 667 MHz - PC2-5300
- 320GB* SATA Hard Drive DVD±RW (±R DL)
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- Apple MacOS X 10.4.10
- 1 year warranty

$2149

V0938 | RENT $24.10/wk*

Aspire iDea Slimline

INTEGRATED MULTIMEDIA ENVIRONMENT

- Intel Core 2 Duo T5500 Dual-Core
- 2GB DDR2 SDRAM
- 500GB SATA
- 16x Dual Layer DVD RW Drive
- NVIDIA GeForce Go 7600
- Digital and analogue TV tuner
- HDMI
- Microsoft Windows Vista Home Premium
- 1 year on-site warranty

$2949

V0962 | RENT $15.69/wk*

dx2300 MT

Processor	Intel Pentium Dual Core E2140	Intel Pentium Dual Core E214
Clock Speed	1.6GHz	1.6GHz
RAM	512MB DDR2 RAM	1GB DDR2 RAM
Hard Drive#	80GB# SATA	160GB# SATA
Optical Drive	16x DVD±RW Dual Layer	16x DVD±RW Dual Layer
Operating System	Windows® XP Professional	Windows® XP Professional
Warranty	1 year	1 year
Price	**$749** V2155 | RENT $8.66/wk*	**$899** V1575 | RENT $10.40/wk*
Price w/19" Monitor	**$999** V2360 | RENT $11.56/wk*	**$1199** V2218 | RENT $13.87/wk*

VT L460 USFF

- Intel Core 2 Duo E4500
- 2GB DDR2 RAM (2 x 1GB)
- 320GB SATA Hard Drive
- 16x Dual Layer DVD RW drive
- Microsoft Windows XP Professional
- 1 year on-site warranty

20 CM

SUPER SMALL DESIGN

$1199

V3043 | RENT $15.03/WK*

dx7400 MT

- Intel Core 2 Duo E4400
- 1GB 667MHz DDR2 RAM
- 80GB* SATA Hard Drive
- 16x Dual Layer DVD Read/Write drive
- Intel Graphics Media Accelerator 3100
- Microsoft Windows Vista Business
- 1 year limited onsite warranty
- HP L1910 19" LCD Monitor
- HP Photosmart C4385 all-in-one

$1399

V2325 | RENT $15.69/wk*

*For terms and conditions, including RentSmart, see back cover. *Accessible capacity of hard drive may be less due to preinstalled software. [1]PC comes pre-installed with a 60-day trial of Microsoft Office Professional 2007. To activate a Microsoft Office Suite for this PC simply purchase a Medialess License Kit (within 90 days of PC purchase). Redemption charges may apply. [2]Purchase the Acer Veriton Quad Core desktop PC (HT Part: S9579) between 01/12/07 and 31/12/07 and go in to the draw to win an Acer 32" LCD TV. Value of TV is $998. Prize will be drawn on 07/01/2007. NSW Permit Number: LTPS/07/28154. Visit **acerpromo.ht.com.au** for full terms and conditions. [3]Harmony 525/785 advanced universal remote by redemption from Lenovo. See **www.lenovo.com.au/redemption** for terms, conditions and redemption details.

Veriton VT7900

QUAD CORE PROCESSOR

- Intel Core 2 Quad Q6600
- Intel vPro Technology
- 2GB DDR2 RAM (2 x 1GB)
- 320GB# SATA Hard Drive
- 16x Dual Layer DVD Read/Write Drive
- Intel Graphics Media Accelerator 3000
- Microsoft Windows XP Professional
- 3 year onsite warranty

$1299

S9579 | RENT $15.03/wk*

ONLY @ HT

WIN A 32" LCD TV

Purchase the powerful new Acer Veriton Quad Core desktop PC during December and go in to the draw to win an Acer 32" LCD TV[2]

Authorised under NSW Permit Number: LTPS/07/28154

A61e ThinkCentre USDT

THE MOST ENERGY EFFICIENT THINKCENTRE EVER

- AMD Athlon X2 BE 2350
- 1GB 667MHz DDR2 RAM
- 160GB# SATA Hard Drive
- 16x Dual Layer DVD RW drive
- Integrated ATI Radeon X1200
- Microsoft Windows Vista Business
- 3 years part and 1 year labour warranty

60 Day Trial[1]

BONUS

$949

U5408 | RENT $10.98/wk*

BONUS HARMONY 525 ADVANCED UNIVERSAL REMOTE[3]

Aspire L3600

- Intel Core 2 Duo E4500
- 2GB DDR2 667Mhz SODIMM RAM
- 500GB# SATA Hard Drive
- Slim Super Multi DVD Read and Write drive
- 2-piece desktop speakers
- Microsoft Windows Vista™ Home Premium Edition
- Aspire 1 year on-site warranty
- Acer 19" wide Monitor

$1599

V2714 | RENT $15.03/wk*

A55 Thinkcentre

- Intel Core 2 Duo E6300
- 2GB DDR2 RAM (2 x 1GB)
- 250GB# SATA Hard Drive
- 16x Dual Layer DVD±RW drive
- Microsoft Windows XP Professional
- 3 years part and 1 year labour warranty

ONLY @ HT

BONUS

$1199 PRICE WITHOUT MONITOR

U9749 | RENT $13.87/wk*

INCLUDING SAMSUNG 940BW 19" WIDESCREEN LCD MONITOR

$1479

V0827 | RENT $16.58/wk*

BONUS HARMONY 525 ADVANCED UNIVERSAL REMOTE[3]

AT3220B

acer

32" (81cm) Widescreen LCD TV with HDMI

$899 | V2681 | RENT $10.40/wk*

YOU PAY **$998** BEFORE CASHBACK[1]

AL2416WD

acer

- Viewable Image Size: 24" Widescreen
- Interface: Analogue/Digital
- Resolution: 1920 x 1200
- Contrast Ratio: 1000:1
- Response Time: 6ms
- Brightness: 500 nits
- Vesa Wall Mounting 100 x 100mm
- 3 years warranty

$599 | A7514 | RENT $6.93/wk*

940N

SAMSUNG

- Viewable Image: 19"
- Interface: Analogue
- Resolution: 1280 x 1024
- Contrast Ratio: 700:1
- Brightness: 300 nits
- Response Time: 5ms
- Tilt and wall mountable
- Warranty: 3 year on-site exchange and zero dead

$309 SILVER | U5078
BLACK | U5076

245B

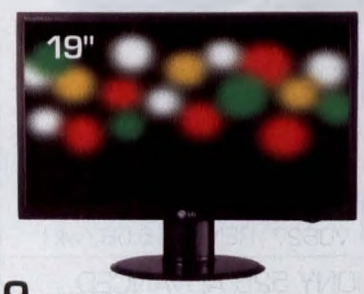
SAMSUNG

- Viewable Image: 24" Wide
- Interface: Analogue / Digital
- Resolution: 1920 x 1200
- Contrast Ratio: 3000:1
- Brightness: 400 nits
- Response Time: 5ms
- Height adjustable, swivel and tilt
- Warranty: 3 years on-site exchange and zero dead pixel policy

$849 | V2083 | RENT $10.40/wk*

L196WTQ

- Viewable Image: 19" Wide
- Interface: Digital
- Resolution: 1440 x 900
- Contrast Ratio: 5000:1
- Brightness: 300 nits
- Response Time: 2ms
- Warranty: 3 year on-site



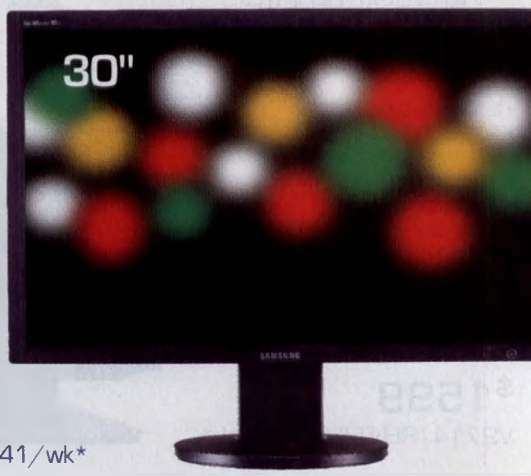
$379 | V3289

305T

SAMSUNG

STUNNING IMAGE QUALITY

- Viewable Image: 30"
- Interface: Digital
- Resolution: 2560 x 1600
- Contrast Ratio: 1000:1
- Brightness: 400 nits
- Response Time: 6ms
- Built-in Wall-Mount Vesa: Height, swivel and tilt 200 x 100
- Warranty: 3 year on-site exchange and zero dead pixel policy



$1999 | U6636 | RENT $22.41/wk*

6 SMART REASONS TO RENT

1. Affordable monthly repayments
2. Save your money
3. Tax deductible
4. Always have the latest equipment
5. Get more equipment
6. Fast approval

RENTSMART
Because buying isn't

206BW/226BW

SAMSUNG

THE ULTIMATE IN PERFORMANCE

- Viewable Image: 20"/22" Wide
- Interface: Analogue/Digital
- Resolution: 1680 x 1050
- Contrast Ratio: 3000:1
- Brightness: 300 nits
- Response Time: 2ms
- Warranty: 3 year on-site exchange and zero dead pixel policy

$389 | U5892 | 20"

$549 | U5893 | 22"

TDP-T9

TOSHIBA

- DLP technology
- XGA resolution
- 2000 ANSI Lumens
- 2000:1 contrast ratio
- 3 years warranty[2]

BONUS

$1499

T6349 | RENT $20.17/wk*

BONUS ALUMINIUM BRIEF CASE, 5 DVD'S AND REPLACEMENT LAMP[3]

TDP-P8

ONLY 1KG

TOSHIBA

- DLP technology
- XGA resolution
- 1500 ANSI Lumens
- 2100:1 contrast ratio
- 3 years warranty[2]

BONUS

$2099

T3878 | RENT $23.54/wk*

BONUS ALUMINIUM BRIEF CASE, 5 DVD'S AND REPLACEMENT LAMP[3]

X3000

TOSHIBA

- LCD technology
- XGA resolution
- 3000 ANSI Lumens
- 400:1 contrast ratio
- 3 years warranty[2]

BONUS

$2399

U5344 | RENT $26.01/wk*

BONUS ALUMINIUM BRIEF CASE, 5 DVD'S AND REPLACEMENT LAMP[3]

TDP-S8

TOSHIBA

- DLP technology
- SVGA resolution
- 2000 ANSI Lumens
- 2000:1 contrast ratio
- Compact 2.0kg
- 3 years warranty[2]

BONUS

$999

T6351 | RENT $11.56/wk*

BONUS ALUMINIUM BRIEF CASE, 5 DVD'S AND REPLACEMENT LAMP[3]

FA-19W

FUJITSU

- Viewable Image: 19" Wide
- Interface: Analogue/Digital
- Resolution: 1440 x 900
- Response Time: 5ms
- Contrast Ratio: 500:1
- Brightness: 300 nits
- Built-in Speakers
- 3 years limited warranty

HOT PRICE

$289 | V1324

L226WTP

- Viewable Image: 22" Wide
- Interface: Digital
- Resolution: 1680 x 1050
- Contrast Ratio: 5000:1
- Brightness: 300 nits
- Response Time: 2ms
- Warranty: 3 year onsite warranty

$539 | V3291

P1265

acer

- DLP technology
- SVGA resolution
- 2400 ANSI Lumens
- 2000:1 contrast ratio
- Compact 2.0kg
- 3 years warranty[3]

NEW

$1649 | V2860 | RENT $18.49/wk*

*For terms and conditions, including RentSmart, see back page. [1]$99 Cashback available via redemption when you purchase the Acer AT3220B between 01/12/07 to 31/12/07. Visit **www.acer.com** for details on how to claim as well as full terms and conditions. Redemption charges may apply. [2]3 years part and labour quality assurance warranty with 90 day lamp and faulty product replacement. [3]Purchase this Toshiba projector between 01/12/2007 and 31/12/2007 and receive a bonus Toshiba Aluminium Brief case, 5 DVDs and a bonus lamp via redemption. Visit the Toshiba Promotions Website, **http://www.isd.toshiba.com.au/redemption/r_index.asp** for details on how to claim as well as full terms and conditions.

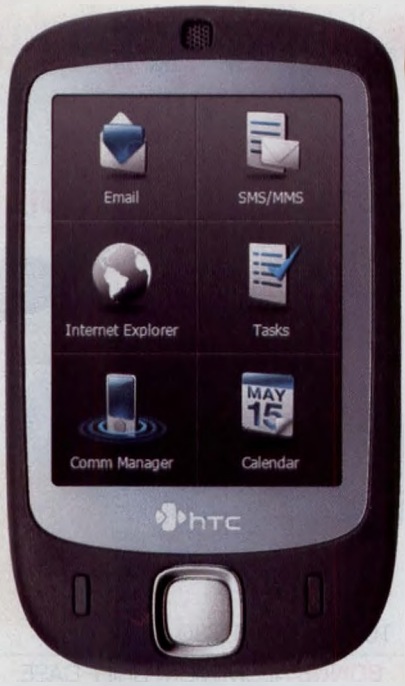
Touch

Let your fingers guide you with the HTC Touch, the world's first touch phone that gives you a whole new touch panel experience. The HTC Touch with TouchFLO™ revolutionises the way you use the touch screen by allowing finger scrolling and panning. It also features the Touch Cube which is a unique user interface that makes quick dialing and navigation a breeze.

Optimised for entertainment, the HTC Touch lets you enjoy your favourite music and movie clips on the go. It comes with a 1GB microSD™ memory card for storing your media files.

Stylish, smart and versatile, the HTC Touch opens up a world of media, communication and social interaction.

$699
V2359 | RENT $8.09/wk*



htc smart mobility

Specifications:
- Windows 6.0 Professional with direct push email and HTML email support
- Intuitive TouchFLO™ screen technology for finger and stylus input
- Simple user interface for quick dialing, navigation and launching applications
- Enjoy music and movie clips with HTC's Audio Manager and Windows Media® Player
- 1GB microSD storage card included / 64MB RAM, 128MB ROM
- Weight: 112g with battery
- Camera: 2.0 mega-pixel CMOS colour camera

Tungsten TX

The Palm TX handheld is the affordable handheld with total wireless connectivity that you've been waiting for. With built-in Wi-Fi and Bluetooth technologies, you can check email, browse the web and work wherever you want. Its large colour display and sleek design are anything but business as usual.

$479 | T0850

S30 GPS

NAVMAN

- Simple to use
- Great value for money
- Latest 2007 (R14) mapping
- Preloaded safety camera and red light camera alerts
- 2 year warranty
- Slim, portable design – fits in your pocket
- Nearest fuel and parking short cuts
- Emergency services short cut
- Hi quality navigation and guidance experience

$399 | V1308

ONLINE ONLY[2] 10% OFF

10% OFF Smartphones & PDA's

GO720 GPS

TOMTOM

TomTom GO is a stand-alone, portable and easy-to-use car navigation appliance that incorporates navigation software, maps and GPS receiver in one device. Navigation solutions are now accessible to everyone thanks to TomTom GO's ease-of-use, ease of installation and affordability. Complete car navigation solution in one box.

$799 | V0788 | RENT $9.24/wk*

ONE 3rd Edition

TOMTOM

The new TomTom ONE 3rd Edition combines ease of use, portability, TomTom's patented touch screen technology and award winning software. It also features a sleek lightweight design and is ultra compact so that users can easily carry it to and from their cars.

SAVE $30

$369 | V2279

*For terms and conditions, inlcuding RentSmart, see back cover. [1]Cashback offer via redemption from Engin between 01/12/07 to 31/12/07. See **engin.ht.com.au** for details. Redemption postage fees may apply. [2]Online Only Offers available online only between 01/12/07 and 31/12/07. Delivery charges may apply. Not availab in conjunction with any other offer. Not available in Business Centres or via phone. No further discounts available. Only while stocks last. Limited supply per customer (except SA). Offer subjec to Harris Technology's Returns Policy and Terms & Conditions of purchase.

GS724T Prosafe 24 Port Gigabit Smart Switch

NETGEAR

- 24 10/100Mbps ports
- 4 10/100/1000Mbps copper gigabit ports
- Smart Switch software with new advanced features
- Stacking via the built-in gigabit ports

$799 | N3147 | RENT $9.24/wk*

DGS-1224T 24 Port Gigabit Smart Switch

D-Link Building Networks for People

- Easily create a high-speed Ethernet network with Gigabit capability
- 48Gbps Switching Capacity
- 8,000 MAC Address Table
- 10/100/1000Mbps Migration

$795 | N1047 | RENT $9.20/wk*

SR2024 Linksys 24 Port Gigabit Switch

LINKSYS A Division of Cisco Systems, Inc

- 24 10/100/1000Mbps, half/full duplex, switched ports, and two Mini-GBIC expansion ports
- Forwards and filters packets at non-blocking, full wire speed
- All ports have auto speed negotiation and auto MDI/MDI-X crossover detection
- Linksys reliability and limited lifetime warranty

$589 | M5854 | RENT $6.81/wk*

DG834GV

NETGEAR

Six products in one, it combines an ADSL2+ Modem, Router, 10/100 Wired LAN Switch, 802.11g Wireless Access Point, Voice-over-IP (VoIP), and SPI Double Firewall. Plug in your ADSL line and soon you can share your broadband connection to the Internet with all of your networked computers both wirelessly and wired. A Smart Wizard simplifies setup.

$259 | U9695

VoiceBox 3102

engin

- Have you got broadband?
- Want 10 cent phone calls Australia wide?
- Want the option to use your existing phone number?
- Have a home or office phone?

This product allows you all of the above plus includes an in-built router should you need one

$129 | U9016

NB9W Wireless MyNet Gateway

NetComm

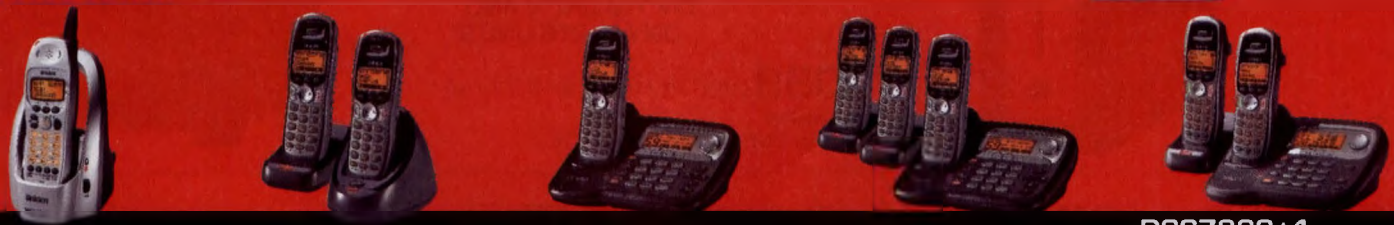
- Features ADSL2+ modem, 4 port QoS router, 2x FXS (VoIP) ports, 1 x FXO line port for landline telephone backup and 11g (54Mbps) Wireless Access Point in one box
- Layer 3 Quality of Service (QoS) router ensures high quality VoIP calls
- Web-based configuration for your choice of broadband and VoIP Service Providers

$249 | T3138

Uniden Sounds Better — Uniden Cordless Phones

WDECT Widband Digital

Premium 5.8GHz Digital Spread Spectrum



WDECT3315	DSS7915+1	DSS7955	DSS7955+2	DSS7960+1 Dual Line Phone
WDECT Technology	5.8GHz Digital	5.8GHz Digital	5.8GHz Digital	5.8GHz Digital
Multi 4 handset capabilities	Multi 10 handset capabilities	Multi 10 handset capabilities	Multi 10 handset capabilities	Multi 10 handset capabilities
Advanced Alpha ID Display	WiFi Network Friendly	WiFi Network Friendly	WiFi Network Friendly	WiFi Network Friendly
Two-way communications	Optimum Clarity & Security	Optimum Clarity & Security	Optimum Clarity & Security	Optimum Clarity & Security
Digital duplex speakerphone	**2 Handsets**	**1 Handset**	**3 Handsets**	**3 Handsets**
1 Handset		Integrated Digital Answering Machine	Integrated Digital Answering Machine	Integrated Digital Answering Machine
				Dual Line
$76 | U9317	**$171** | U9323	**$171** | U9324	**$266** | U9326	**$269** | U4664

NAS200 Network Storage System with 2 HDD Bays

LINKSYS
A Division of Cisco Systems, Inc.

- Ethernet-connected network appliance with two available SATA hard drive bays adds shared storage directly to your network
- Add even more storage with two USB 2.0 ports for hard drive or flash-based USB storage devices
- Share music, video, or data files, locally and through the Internet (HTTP and FTP) with securely managed access by user name or group

$50 REBATE WHEN YOU PURCHASE WITH SELECTED SEAGATE BARRACUDA SATA HARD DRIVES[1]

$249 | V0668

ReadyNAS NV+ 1TB Gigabit Desktop Network Storage - 4 Disks

NETGEAR
PROSAFE

The automated RAID expansion is made possible by our patent pending X-RAID technology while hot swap support allows you to replace a disk without powering down the system. Leading performance is assured with our custom network storage microprocessor and a Gigabit Ethernet network port. ReadyNAS couples out of the box deployment and easy management with robust file serving and data redundancy.

- 4 x 250GB hot-swap SATA HDD, swap out drives on the fly without powering down
- Hardware accelerated RAID (0,1,5 and X-RAID™) for better file transfer performance
- Bundled 5-Client EMC® Retrospect® backup and recovery software for Windows and Macintosh

BEST IN CLASS NETWORK STORAGE
SEE A WORKING DEMO IN STORE
NOW WITH 5 YEARS WARRANTY

$1999 | U8794 | RENT $22.41/wk*

Also Available
1TB Gigabit Desktop NAS - 2 Disks | **$1999** | U8816 | RENT $22.41/wk*
2TB Gigabit Desktop NAS | **$2999** | U8817 | RENT $31.90/wk*
4-Bay Gigabit Desktop NAS (No Disk) | **$1699** | V1246 | RENT $19.05/wk*

DNS-323 2-Bay Network Storage Enclosure

D-Link

- Secure and share your digital files
- Insert either one or two internal 3.5" SATA Hard drives without using any tools or attaching any cables
- Access stored files over the internet

$389 | U4955

TeraStation LIVE 1TB Network Storage Centre

BUFFALO

- Built-in DLNA CERTIFIED™ Media Server
- RAID 0 / 1 / 5 / 10
- 4 Quick-Swap Serial ATA Hard Drives
- Gigabit Networking
- Advanced RAID system continually checks hard drive and RAID performance
- Web Access Feature[2]

$70 CASHBACK ON 1TB UNITS AND
$150 CASHBACK ON ALL 2TB UNITS[2]

$1099 | V0671 | RENT $12.71/wk*

Also Available
TeraStation LIVE 2TB | **$1799** | V0672

EVA8000 HD Digital Entertainer

NETGEAR

- Streams movies, videos, music, Internet radio, and photos from your home PCs and storage devices to your HDTV
- Automatically finds all the digital media files on your home network and organises them into an easily accessible library
- Play YouTube™ Videos on your TV

$599 | U7492 | RENT $6.93/wk*

TeraStation Pro II NAS 1TB Business Server Edition

BUFFALO

- Ultra-fast data transfer rates of up to 35MB/s - more than twice the speed from TeraStation PRO
- Distributed File System support- allows multiple TeraStation to work seamlessly together as one unit
- RAID-10 provides the performance benefits of striping with redundancy of mirroring
- Ideal for multi-user and server systems

$70 CASHBACK ON 1TB UNITS AND
$150 CASHBACK ON ALL 2TB UNITS[2]

$1199 | U5985 | RENT $13.87/wk*

Also Available
TeraStation Pro 2TB | **$1999** | U5986

*For terms and conditions, including RentSmart, see page back cover. #Accessible capacity of hard drive may be less due to preinstalled software. [1]Offer valid from 01/12/07 to 31/12/07. See **www.linksys.com/au/nas200** for full terms and conditions. [2]Purchase one (1) Buffalo TeraStation PRO or LIVE from Harris Technology between 01/12/07 and 31/12/07 and receive $70 cashback on all 1TB units and $150 cashback on all 2TB units. Visit **buffalo.ht.com.au** for claim form and redemption details. Redemption fees may apply. [3]Offer valid from 01/12/07 to 31/12/07. Savings given at time of purchase.

ProLiant ML115
Small Business Server Standard Bundle

The HP ProLiant 100 Series servers have tailored features to meet the specific usage needs of small businesses and remote or unmanaged sites This powerful yet simple platform provides all the relevant server features in an easy-to-use and easy to afford package. Features, such as AMD Opteron and Athlon processors, DDR II ECC memory, PCI and PCI-Express slots, dual serial ports, four hard disk drive bays, and eight USB 2.0 ports deliver the off-the-shelf functionality with expandability for small businesses.

- AMD Opteron Processor 1210, 1.8GHz, 2MB cache
- 1GB (2 x 512MB) DDR2memory
- 2 x 160GB* SATA hard drive
- Integrated 4 ports serial ATA controller with embedded RAID
- Embedded NC320i PCIe Gigabit NIC
- Warranty - 3 yrs parts, 1 year labour, 1 year on-site
- Microsoft Windows Small Business Server 2003 - Standard Edition R2

$999 | U7946
RENT $11.56/wk*

Also Available:
ML115 Small Business Premium Server Bundle | **$1499** | V0688
ML110G4 925 1GB 2x160GB SBS Standard Bundle | **$1249** | U9881
ML110G4 3G 2x1GB 2x160GB SATA GNIC SBS Premium | **$1499** | V0709

DAT 72 USB External Tape Drive

- Up to 36GB native capacity on a single tape
- Dependable disaster recovery - HP StorageWorks One-Button Disaster Recovery (OBDR) restores your entire system at the touch of a button
- USB 2.0 interface provides plug-and-play connectivity

SAVE 30% WHEN PURCHASED WITH ANY HP ML SERIES SERVER PRICE WITH SERVER **$810**[3]

$1158 | T3491 | RENT $13.40/wk*

T1000 G2 UPS 1000VA 650W Serial USB

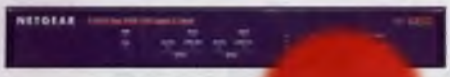
- Manageability through USB port
- Ease of configuration via enhanced front panel display
- Intelligent manageability with bundled Power Management software
- Long-term battery reliability with Enhanced Battery Management
- Hot-Swappable battery
- Enhanced system flexibility with independently controllable load segment

SAVE 30% WHEN PURCHASED WITH ANY HP ML SERIES SERVER PRICE WITH SERVER **$455**[3]

$650 | U5222 | RENT $7.52/wk*

FVS336G ProSafe™ Dual WAN G-bit Firewall SSL & VPN

- Supports up to 25 IPsec VPN tunnels and 10 SSL VPN tunnels simultaneously
- Supports two broadband connections, in either a load-balancing or fail-over configuration
- Backed by a lifetime warranty



NEW

$499 | V3033

DSA-3600 Multi-Service Business Gateway

- Single point of user access control and AP management
- No client device configuration
- Customisable login portal page
- Ease of maintenance

NEW

$1559 | V3042
RENT $17.48/wk*

2 Port ServerLink Dual KVM Switch USB/PS2/Audio

- Desktop USB + PS/2 KVM switch with audio and microphone switching
- Supports USB or PS/2 computers on every port
- Supports USB or PS/2 on console side
- Multi-platform support for PC, Macintosh G3/G4 and iMAC
- Built-in 2 port USB hub for sharing USB devices
- Also available in 4 port model

$149 | T7536

Also Available
4 Port ServerLink Slim KVM | **$159** | Q5543

External Hard Drives

My Book Essentials 1TB

Western Digital

- Easy to use
- Instant Storage
- SmartPower™
- Windows 2000/XP/Vista and Mac OS X 10.4.8 (or Later) Compatible, USB 2.0

$399 | V3265

My Book Premium II 2TB

Western Digital

- RAID mirroring for extra data protection
- RAID striping for extraordinary capacity and performance
- Extraordinary capacity
- Small footprint design

SAVE $200

$799 | V1164 | RENT $9.24/wk*

1TB BigDisk Gigabit Ethernet Mini + USB2.0 NAS

LACIE

- Gigabit Ethernet and USB2.0 interface
- Expandable capacity through a USB host port
- User and share level permissions

NETWORK ATTACHABLE

HOT PRICE

$499 | U5309

My Book Essentials 750GB

Western Digital

- Easy to set up, easy to use
- This drive is all about simplicity
- Plug it into your computer's USB 2.0 port and start saving
- The My Book drive turns itself on and off with your computer

HOT PRICE

$299 | V3313

2GB Micro SD Card

SanDisk

$39.99 U3749

Ultra II 2GB Secure Digital Card

SanDisk

$46.99 R3304

4GB SDHC Card and Reader

SanDisk

SAVE $8

$69.99 U6287

Ultra II 8GB CompactFlash Card

SanDisk

SAVE $20

$179 R1041

*For terms and conditions, including RentSmart, see back page.

Portable Drives

Passport 250GB Portable Hard Drive

Western Digital

- Hi-Speed USB2.0 interface
- Powered by USB bus - no adapter needed
- Driver-free - no software to configure

SAVE $30

$249 RED | V1049
WHITE | V0969
BLACK | U9546

MiniStation TurboUSB Portable Hard Drive

BUFFALO

- High-Speed 5,400rpm HDD
- Easy Setup - no need to install drivers
- Supports USB 2.0
- Memeo™ auto backup software included
- Secure lock ware software to protect your data

$99 | V2138 | 80GB
$199 | V2139 | 160GB

250GB Mobile Disk Drive USB2.0

LACIE

- Hi-Speed USB2.0 interface
- Powered by USB bus - no adapter needed
- Driver-free - no software to configure

$279 | V1601
Also available:
160GB | $179 | V1555

Passport 120GB Portable Hard Drive

Western Digital

- USB 2.0 interface
- 5400 RPM 2MB Cache
- WD Sync synchronisation and encryption software lets you save your critical data, and take it with you

$139 | U5608

Cruzer Micro U3 8GB

SanDisk

- Retractable USB connector
- Enhanced for ReadyBoost
- Brilliant amber LED
- U3 smart enabled

SAVE $10

$135 | V2315

4GB Micro Vault Turbo USB 2.0

SONY

$99.95 | V2708

8GB Micro Vault Classic USB 2.0

SONY

$155 | V2709

Limited Edition Model Ducati 4GB Extreme USB Flash Drive

SanDisk

$175 | V2314

Harmony 785 Advanced Universal Remote

Logitech

This is the ultimate device to control even the most complex home entertainment systems.

- Brilliant 3.5" (9cm) touchscreen
- One-touch activity control
- Easy computer-based set up

SAVE $50

$293 | U0607

AudioHub for Notebooks

Logitech

- 2.1 full-sized sound for your notebook
- An integrated USB hub allows you to connect or disconnect your speaker and accessories with a single cable

NEW

$149 | V3049

16GB Pocket Disk Drive USB 2.0

shintaro

- Huge 16GB Capacity
- Includes security zone software so you can partition the memory with a password to protect private data

SAVE $50

$229 | U8965

Digital Photo Frame 10" - 256MB

kaiser baas

- 10.4" diagonal viewing area
- Easy to use on-screen menus and button controls
- Plays slideshows with background music with MP3s

SAVE $100

$299 | V1321

Harmony Advanced Universal Remote 1000i

Logitech

- Control all your devices with just one button
- Choose "Watch DVD" and the Harmony turns on your TV, DVD, Stereo receiver- even presses play
- Controls 3,500+ brands, 125,000+ devices so you're always in control
- Includes colour LCD display and rechargeable battery

SAVE $70

$499 | U5173

Pure-Fi Anywhere

Logitech

- Rich sound and deep bass thanks to 2" active and 3" pressure drivers
- 10-hour rechargeable battery
- Protective travel case
- Browse and control your iPod with the wireless remote

HOT PRICE

$199 V1349 | BLACK
V1350 | WHITE

Reclusa Gaming Keyboard

Microsoft

- Blue LED backlit keys allow gaming in low-light or no-light conditions
- Razer Hyperesponse Gaming Key Action reduces key latency for maximised response

$30 CASHBACK[1]

$89 | V3305

BEFORE CASHBACK YOU PAY $119

*For terms and conditions see back page. [1]CashBack available between 01/09/07 and 31/01/08. Redeem your Cash Back to value of 25% off the recommended retail price. Claims must be received by 5pm on 29/02/08. Offer not valid in conjunction with any other offer. For any queries please call 1800 233 033 or visit **www.microsoft.com.au/hardware/offers** for more details.

Cordless Desktop Wave

Logitech

- High-performance cordless laser mouse
- Wave-shaped contour of the keys comfortably cradles your fingers
- Cushioned palm rest

$179 | V0698

diNovo Media Bluetooth Laser Desktop

Logitech

- Bluetooth MediaPad — long range Bluetooth remote commander
- Combines a numeric pad, calculator and remote control

$329 | T3582

diNovo Edge Bluetooth Keyboard

Logitech

- Stylishly sleek design with stand, ideal for office or home
- Advanced Li-ion batteries charge more quickly and last longer

HOT PRICE

$299 | U5116

Wireless Entertainment Desktop 7000

Microsoft

- Connect wirelessly up to 30 feet
- Ultra-Thin Comfort Curve design to work comfortably
- Customise 5 keys to instantly bring up photos, folders and Web pages

$65 CASHBACK[1]

$164 | U7713

BEFORE CASHBACK YOU PAY $229

Logitech V450 Laser Cordless Mouse for Notebooks

Logitech

- Precision laser tracking
- Ergonomic design with soft rubber grips
- 2.4GHz digital cordless technology for strong connections and no interference

$79.95 | U0117

MX Revolution

Logitech

- Logitech SmartShift™ Technology
- Revolutionary hyper-fast scroll wheel
- Rechargeable Li-Ion battery
- Precision laser tracking
- PC and MAC compatible

$129 | T9986

Sidewinder Gamer's Mouse

Microsoft

- Shape Designed for Handling
- On-the-Fly DPI Switching
- First-Ever Gaming Mouse LCD Display
- Cable Anchor/Accessories Storage Box

$35 CASHBACK[1]

$79.95 | V2358

BEFORE CASHBACK YOU PAY $114.95

MX Air Rechargeable Cordless Mouse

Logitech

- High-performance cordless laser mouse to command your PC
- Use MX Air on the desk with a cursor or in the air with a gesture
- Freespace technology transforms motions into cursor control

NEW

$229 | V2663

IXUS 70S DIG!C III

Canon advanced simplicity

Inspired by the very first IXUS, the slender Digital IXUS 70 is a masterpiece of minimalist design. Equipped with leading Canon technologies, if offers performance to match its breathtaking looks.

$299 | U6162

DSCS700

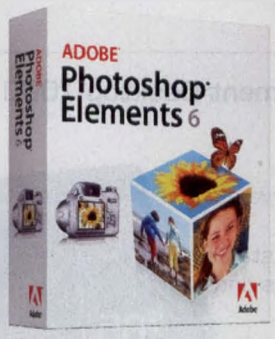
SONY

- 7.2 megapixels, 3 x optical zoom
- Function guide
- High sensitivity ISO 1000
- 2.4" LCD
- Full metal body
- Stamina
- Movie capture
- 24MB internal memory

$189 | V1836

SAVE 20%

Adobe Photoshop Elements 6 if purchased with any of these cameras[1]



Photoshop Elements 6

$159 | V3287

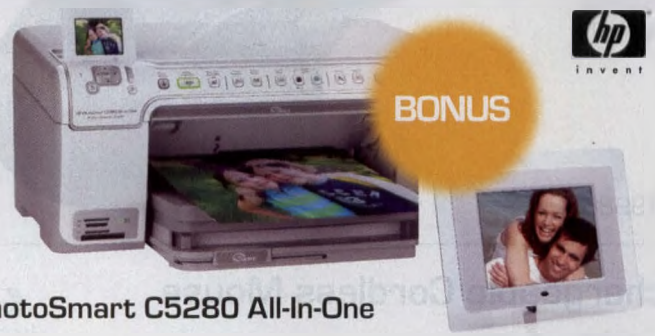
IXUS 75 DIG!C III

Canon advanced simplicity

With its cutting edge design and extra large LCD, the Digital IXUS 75 is styled to stand out. The DIGIC III processor and advanced features like Face Detection Technology ensure equally stunning results.

$349 | U8906

harristechnology
Harris Technology has a wide range of ink, toner and paper consumables at competitive prices from all leading brands. Shopping for your consumables is easy.
Visit ink.ht.com.au



PhotoSmart C5280 All-In-One

- Printer/Copier/Scanner
- Print Speed: up to 32ppm mono / up to 24ppm colour
- Built-in card reader
- CD/DVD print capability
- 2.4" colour LCD screen
- Connection: USB
- Warranty: 1 year

$189 | U9770

BONUS 7" Digital Photo Frame[2]

Officejet Pro K5400dtn

- Print speed: up to 36ppm mono/ 35ppm colour
- Print Resolution: 4800 dpi colour
- Duplex (dual sided) printing
- Total Media Capacity: 600 sheets
- PCL 3 support
- Extra paper tray (total paper holding 600pg)
- Connection: Hi-Speed USB, Ethernet 10 Base-T/100 Base-TX
- Windows and Mac compatible
- Duty Cycle: 7500 pages/month

30 DAY MONEY BACK GUARANTEE[3]

$379 | U7751

*For terms and conditions see back cover. [1]Purchase any of these advertised cameras from Harris Technology between 01/12/07 and 31/12/07 and get 20% off the purchase price of Adobe Photoshop Elements 6. [2]Digital photo frame via redemption from HP on purchases between 01/11/07 and 31/12/07. See **hp.ht.com.au** for more details. $14.95 redemption fee applies. Image for illustration purposes only. [3]Money Back Guarantee by redemption from HP on purchases until 30/04/08. See **hp.ht.com.au** for more details. [4]Cashback by redemption from Epson on purchases between 27/09/07 and 13/01/08. See **epson.ht.com.au** for more details. Redemption postage fees apply.

OfficeJet Pro L7580

- Print & Copy Speed: up to 36 ppm mono/ up to 35 ppm colour
- Print Resolution: up to 4800 x 1200 dpi
- Scan Resolution: up to 2400 x 4800 dpi
- Total Media Capacity: 250 sheets
- Memory: 64MB
- Connection: USB, Ethernet 10 Base-T
- Duty Cycle: 7500 pages per month max
- Warranty: 1 year

30 DAY MONEY BACK GUARANTEE[3]

$499 | U8052 liveprintdemo

PIXMA MP830

Canon advanced simplicity

- Printer/Copier/Scanner/Fax
- Print Speed: up to 30ppm mono/up to 24ppm colour
- Print Resolution: up to 600 x 600 dpi mono / up to 9600 x 2400 dpi colour
- Scan Resolution: 2400 x 4800 dpi
- ADF & Built in Duplex
- Standard Media Capacity: 300 sheets
- Warranty: 1 year

$499 | T6987 liveprintdemo

Stylus Photo RX610

EPSON

- Epson Claria ultra high definition Photographic ink
- Fast print speeds of up to 38ppm
- 4 x 6 photo prints from 12 secs
- Economical Intellidge™ individual 6 colour cartridge system
- 2.5" LCD viewer
- CD/DVD printing

$249 | V2278

BEFORE CASHBACK YOU PAY $299

MFC-685CW

brother

- Print/Copy/Scan/Fax
- Direct Photo Printing
- 3.3" Colour LCD
- Wireless / Network Ready
- Reallusion® FaceFilter Studio Software
- Up to 10-Sheet ADF
- Telephone & TAD

$349 | V1069

LabelWriter Twin Turbo

DYMO

- 300 dpi for super quality labels
- Up to 60mm wide labels
- 55 labels per minute print speed
- Automatic back-up of first label
- Label Release feature for simplified unloading of labels
- USB connection
- Automatic switch between left and right side at the end of a label roll

$249 | U8571

Deskjet 460CB + Wireless G Card

- Print Speed: up to 17ppm
- Print Resolution: 1200 x 1200 dpi
- Total Media Capacity: 50 sheets
- Memory: 32MB
- Connection: USB
- Monthly duty cycle: 500 pages

$449 | U6875

BONUS Wireless Card

HARRIS TECHNOLOGY

SERVICES

INSTALLATION HEADACHES?

Let the experts at Harris Technology do it for you. Do you wish you had an IT department to solve your technical headaches? Now even small businesses can afford to have one! Outsourcing technicians from Harris Technology is a smart way to keep your business operational at any time, ensuring ongoing maintenance and minimising your fixed costs.

PRINTER INSTALLATION STANDARD PACK

- Install one new printer (local or network)
- Install printer drivers on up to 2 PCs
- Perform test prints

$162^

SITE VISIT | U5901

CLP-300N Colour Laser

SAMSUNG

WORLDS SMALLEST COLOUR LASER PRINTER

- Poster print function
- Ultra quiet
- Easy toner replacement system
- Print Speed: up to 16ppm mono A4/4ppm colour
- Print Resolution: 2400 x 600 dpi
- Total Media Capacity: 150 sheets
- Memory: 64MB
- Connection: USB, Ethernet
- Monthly Duty Cycle: 24,200 pages
- Warranty: 1 year on-site

$100 CASHBACK[1]

$299 | U0104

BEFORE CASHBACK YOU PAY $399

HL-5250DN

brother

- Print Speed: up to 30 ppm
- Print Resolution: 1200 dpi x 1200 dpi
- Total Media Capacity: 300 Sheets
- Memory: 32MB
- Connection: USB / Ethernet connection
- Duplex mode for dual sided printouts
- Monthly duty cycle: 20,000 pages
- Warranty: 1 year

$449 | T3555

Laserjet P2015 Series

hp invent

- Printing at the speed of business for workteam productivity
- Get this printer for the professional quality you require day in and day out
- Save hours with fast set-up, hassle-free use and convenient supplies reordering
- Ideal for workteams of up to 10 users and demanding individuals in small, medium and enterprise companies who need a reliable, space-saving, black-and-white printer for fast, high-quality business printing

BONUS

$699

P2015N | U4728 | RENT $8.09/wk*

Also Available:

LaserJet P2015	$579	U5652	RENT $6
LaserJet P2015DN	$799	U6036	RENT $9
LaserJet P2015X	$899	U5828	RENT $1

BONUS 2 YEAR WARRANTY[2] AND TONER[3]

MFC-7420

brother

- Printer/Copier/Scanner/Fax
- Print & Copy Speed: Up to 20ppm
- Print Resolution: Up to 2400 x 600 dpi
- Scan Resolution: 600 x 2400 dpi
- Total Media Capacity: 250 sheets
- Connection: Parallel, USB
- Warranty: 1 year

$459 | R5744

Laserjet P3005 Series

hp invent

The HP LaserJet P3005 Printer series is the ideal solution for small and medium-sized offices. With its ease-of-use, low total cost of ownership and robust performance, this worry-free printer allows you to rest easy and concentrate on your business.

- Efficiency through faster print
- Productivity enhanced by connectivity
- Save time with fewer interruptions

BONUS

$1099

U4776 | RENT $12.71/wk*

Also Available:

LaserJet P3005N	$1429	U5328	RENT $
LaserJet P3005DN	$1599	U5330	RENT $
LaserJet P3005X	$2329	U5331	RENT $

BONUS 2 YEAR WARRANTY[2] AND TONER[3]

*For terms and conditions, including RentSmart, see page back cover. ^Charges apply only to Metropolitan locations within 50km from General Post Office. [1]Cashback by redemption from Samsung on purchases between 01/11/07 and 31/12/2007. See **samsung.ht.com.au** for details. [2]2015 series - Bonus 2 year warranty and 3005 series - Bonus 2 year warranty by redemption from HP. Valid for purchase from 01/08/07 to 29/02/08. Visit **hp.ht.com.au** for full terms & conditions. [3]Bonus Toner by redemption from HP on purchases between 01/08/07 to 29/02/08. See **hp.ht.com.au** for details. Redemption postage fees may apply. [4]Cashback by redemption from HP on purchases between 01/12/07 and 30/03/08. See **hp.com.au/laserjetpromotions** for full terms & conditions. Redemption fees may apply to all cashbacks.

LaserJet 2840

- Printer/Copier/Scanner/ Fax
- 7-in-1 card reader
- Print speed: up to 19ppm mono/4ppm colour
- Print Resolution: up to 600 x 1200 dpi mono/ up to 600 x 600 dpi colour
- Scan Resolution: 1200 x 1200 dpi
- Connection: Hi-Speed USB, Ethernet
- Warranty: 1 year on-site
- Windows and Mac compatible

$1199 | S1217 | RENT $13.87/wk*

BONUS 2 YEAR WARRANTY[2] & BLACK PRINT CARTRIDGE[2]

Colour LaserJet 2600N

- Print Speed: up to 8ppm mono/8ppm colour
- Print Resolution: 600 x 600 dpi
- Total Media Capacity: 250 sheets
- Memory: 16MB
- Connection: Hi-Speed USB, Ethernet 10/100Base-TX
- Monthly Duty Cycle: 35000 pages
- Warranty: 1 year

$399 | S2505

BEFORE CASHBACK YOU PAY $599

Colour Laserjet 3055

- Printer/copier/scanner/fax
- Print speed: up to 18ppm
- Print Resolution: up to 1200 x 1200 dpi
- Scan resolution: 600 dpi
- Hi-Speed USB, Ethernet
- Warranty: 1 year

liveprintdemo

$749 | T4390 | RENT $8.66/wk*

BONUS 2 YEAR WARRANTY[2] AND TONER[3]

CLX-2160N

- World's Smallest Colour Laser Multifunction Printer - designed to fit your desktop
- Scan and save instantly - scan to and print documents directly from your USB memory key
- Easy-to-use Toner - easy toner replacement system

liveprintdemo

$499 | U8093

BEFORE CASHBACK YOU PAY $699

CLX-3160FN

- Printer/Copier/Scanner/Fax
- Print & Copy Speed: up to 16ppm
- Print Resolution: up to 2400 x 600 dpi
- Scan Resolution: 600 x 1200 dpi
- Standard Media Capacity: 150 sheets
- Connection: Hi-Speed USB, Ethernet 10 Base-T/100 Base-TX
- Warranty: 1 year on-site

liveprintdemo

$799 | U6220 | RENT $11.56/wk*

BEFORE CASHBACK YOU PAY $999

Office Professional 2007 Academic

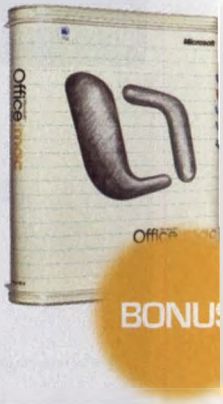
Office Professional 2007 is a complete, easy-to-use suite of productivity and information management software.

Includes:
- Word 2007
- Excel 2007
- PowerPoint 2007
- Publisher 2007
- Access 2007
- Outlook 2007 with Business Contact Manager

$269[1] | U1829

Office Mac 2004 Student Teacher Edition

Office 2004 for Mac introduces features designed to help you transform the way you manage information. Includes Word 2004, Excel 2004, PowerPoint 2004, Entourage 2004.



BONUS

$229[2] | N6773

BONUS UPGRADE GUARANTEE TO OFFICE 2008 FOR MAC[3]

Windows Vista Home Premium

- Experience photos and entertainment in your living room with Windows Media Center
- A stunning new visual experience with Windows Aero and Flip 3-D.
- Keeps PC's safer and more secure with Windows Defender and Parental Controls.

$429 | FULL | U4500 | SAVE **$26**
$299 | UPGRADE | U4501 **$179**[1] | UPGRADE ACADEMIC | U4502

Windows Vista Ultimate

- Better protect your data against loss with Windows BitLocker Drive Encryption
- Protect against hardware failure with Windows Complete PC Backup and Restore

SAVE

$679 | FULL | U4505 | SAVE **$71**
$449 | UPGRADE | U4506 | SAVE **$4**

Office Visio Standard 2007

- Easy for business professionals to visualise and communicate complex information, processes and ideas with professional-looking diagrams
- Allows to easily create diagrams to visualise complex information, present them professionally and share them broadly for effective and efficient decision-making

$419 | FULL | U4497 | SAVE **$26**
$199 | UPGRADE | U4498 | SAVE **$20**
$139[1] | ACADEMIC | U4496

Office Project Standard 2007

- Effectively manage and understand project schedules
- Build schedules, allocate resources, and manage budgets

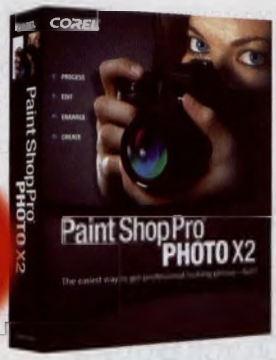
$999 | FULL | U4487
$599 | UPGRADE | U4488
$110[1] | ACADEMIC | U4486

*For terms and conditions see back page. [1]Must be a qualified Education user to purchase this product. For eligibility criteria please visit **http://www.microsoft.com/australia/education/howtobuy/eligibility/studentsandteachers.mspx**. [2]Must be a qualified Education user to purchase this product. For eligibility criteria please visit **www.microsoft.com/australia/office/mac/student.aspx#2**. [3]Purchase eligible genuine retail editions of Microsoft Office 2004 for MAC between 26/09/07 and 29/02/08 and be eligible to upgrade to the new Microsoft Office 2008 for MAC for $27.00 including GST (postage and handling) via redemption from Microsoft. Internet access and payment by credit or debit card required for redemption. [4]Purchase Vegas Movie Studio Platinum 8 between 01/11/07 and 30/12/07 and be eligible to redeem a bonus internal DVD burner. See **newmagic.ht.com.au** for full terms and conditions. [5]Purchase Photoshop Elements 6 standalone product between 01/12/07 and 31/12/07 to be eligible to redeem a Marie Claire Seasonal Kitchen book. See **adobe.ht.com.au** for full terms and conditions.

Corel Paint Shop Pro Photo X2

COREL

- Process photos like the pros
- Edit easily using unique tools
- Enhance photos with powerful, easy-to-use tools



SAVE $50

$149 | V1833

Vegas Movie Studio Platinum 8

SONY

Ideal for producing high-quality movies, corporate videos, wedding DVDs, and more.

- Import and edit support for HD Sony AVCHD
- 24 new DVD themes
- ATRAC editing and encoding
- Gracenote MusicID CD album recognition
- Import and edit DV, HDV, and other video formats

$219 | U9445

BONUS DVD BURNER[4]

Image for illustration purposes only. DVD media not included.

Adobe Photoshop Lightroom

Adobe

- The professional photographer's essential toolbox

SAVE $46

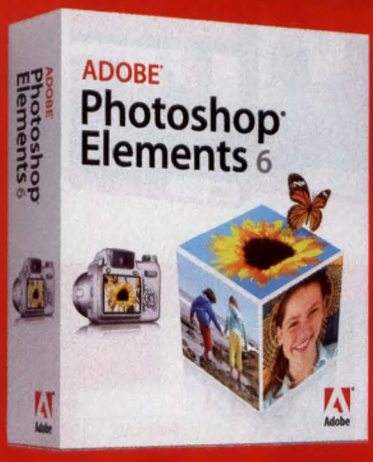
$419 | U8882

Photoshop Elements 6

Adobe

Do it all with one powerful yet easy-to-use product

- Make your photos look their best with easy-to-use editing tools
- Do more with your photos in unique creations for print and web



BONUS

$159 | V3287

BONUS BOOK MARIE CLAIRE SEASONAL KITCHEN VALUED AT $59.95[5]

Adobe Creative Suite 3 Design Standard

Adobe

Includes:

- InDesign CS3
- Photoshop CS3
- Illustrator CS3
- Acrobat 8 Professional
- Adobe Bridge CS3
- Version Cue CS3
- Adobe Device Central CS3
- Adobe Stock Photos
- Acrobat Connect

$1799 | FULL | U6351

$619 | UPGRADE | U6389

Roxio Easy Media Creator 10 Suite

roxio

The new Roxio Easy Media Creator 10 gives you creative inspiration and all the tools you need to enhance your digital lifestyle.

- Convert audio and video files to the format of your choice right on your Windows Vista desktop
- Create dazzling slideshows with music in standard or high definition
- Save tons of time by ripping CDs from multiple drives

$159 | V1842

Quicken Home and Business 2008

- Track all of your personal and business bank accounts, credit cards, income and expenses
- Monitor all of your personal and business investments
- Create BAS and other business Tax reports
- Create Estimates and Invoices

$449 | V2649

BONUS $50 iTUNES MUSIC CARD[1]

Quicken Personal Plus 2008

Reckon

All the functions of Quicken Personal, plus exclusive tools to help you manage your investments and maximise tax-saving opportunities.

- Monitor all of your personal and business investments
- Use the ASIC FIDO Superannuation Calculator

$189 | V2647

BONUS $50 iTUNES MUSIC CARD[1]

QuickBooks Plus 2007/08

Timesaving features and powerful functionality make this a must-have for efficiency-minded businesses. It's designed for businesses that track payroll.

- 12 Months free^ technical phone support and software upgrades

$519 | U5977

SAVE $30

QuickBooks Premier 2007/08

Reckon

Timesaving features and powerful functionality make this a must-have for efficiency-minded businesses. It's designed for businesses that track payroll.

- 12 Months free^ technical phone support and software upgrades

$1299 | U5978

Autodesk

AutoCAD LT 2008

Streamline your day-to-day tasks with AutoCAD LT® 2008 software, the world's number one selling 2D drafting and detailing product, built with the drafter in mind.

$2199 | U5972

AutoCAD 2008

Make efficiency a daily part of the job with AutoCAD® 2008 software. Meticulously refined with the drafter in mind, AutoCAD 2008 propels drafting forward with features that increase speed and accuracy while saving time.

$7040 | U5973

AUTODESK SUBSCRIPTION

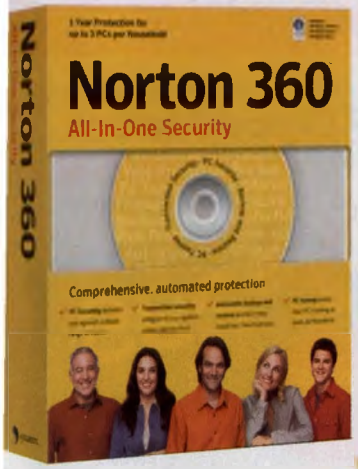
Get up to date and up to speed with the complete software, support, and training package from Autodesk Subscription.

With Autodesk Subscription you receive the latest Autodesk software releases, product enhancements, web support from Autodesk technical experts, self-paced online training to improve your design skills, and a broad range of other exclusive technology and business benefits.

Autodesk Subscription is available for a single annual fee with the purchase of your AutoCAD 2008 or AutoCAD LT 2008 software.

Contact us on 1300 13 9999 for more details. Note: Terms and conditions apply

^$30 back via mail-in redemption from Symantec, proof of previous ownership required. Ends 2/1/08. See box or go to **www.takethenortonchallenge.com** *See **Quicken.com.au** for full terms and conditions [1]Purchase a full version of Quicken Personal Plus 2008 or Quicken Home & Business 2008 between 01/11/2007 and 28/02/2008 and be eligible to receive a $50 iTunes music card via redemption from Quicken. See **quicken.ht.com.au** for full terms and conditions.[2] Purchase a full version of Norton Internet Security 2008 (2, 3, 5 or 10 user pack) or Norton 360 (3, 5 or 10 user pack) between 01/11/07 and 02/01/08 and receive $30 cashback via redemption from Symantec. See **symantec.ht.com.au** for full terms and conditions. [3]Purchase a full version Norton 360 3 PCs between 01/11/07 and 02/01/08 and receive Targus Micro travel USB 2.0 4 port hub bundled in the box. [4]Purchase an eligible full version of PC-cillin Internet Security Pro 2008 3 or 5 user between 01/12/07 and 31/01/08 and receive a USB Digital TV Tuner Card via redemption from Manaccom. Image for



Norton 360 3 PCs

- $30 BACK for users of ANY security software brand![2]
- No.1 internet security software in Australia![1]
- All-in-One security, backup & tuneup for up to 3 PCs
- Bonus 2GB secure online storage
- Fast, free online help

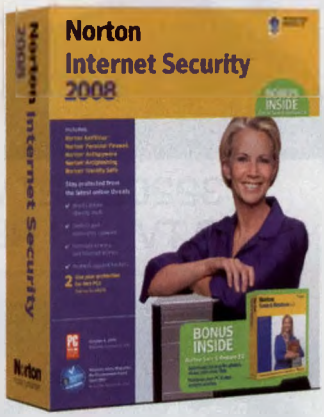
60 DAY MONEY-BACK GUARANTEE*

$129 | V3349

BONUS BONUS 4 USB PORT HUB[3]

Norton Internet Security 2008 2 PCs

- $30 BACK for users of ANY security software brand![2]
- NEW! Lighter, faster, friendlier
- Uses 76% less memory than 2006 version
- Protects against identity theft, spyware, viruses and more!
- Fast, free online help



$89 | V1386

BONUS NORTON SAVE AND RESTORE

PC-cillin Internet Security Pro 2008

TREND MICRO

At home or on the go, Trend Micro Internet Security 2008 Pro safeguards your online transactions, identity and irreplaceable files with the most comprehensive protection available.

Get all the benefits of our proven Internet Security plus enhanced identity theft and transaction protection and remote security management.

BONUS

$129 | 3 USER | V1333

$199 | 5 USER | V1334

BONUS USB DIGITAL TV TUNER CARD[4]

OmniPage 16

LIMITED STOCK

- Faster, more accurate OCR
- Improved formatting, tables and more
- Capture text with a digital camera

NUANCE

HOT PRICE

$99 | V2134

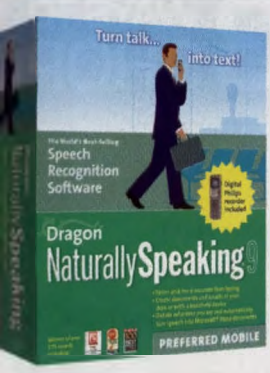
True Image 11 Home

Powerful backup that is easy to do!

- Create an exact copy of your PC for a full backup
- Backup and restore your music, video, data and pictures
- Backup your emails and Outlook data and settings
- Protect your PC application configuration settings

NEW

$79 | V2998



Dragon NaturallySpeaking Preferred Mobile 9 Includes Philips Digital Voice Recorder

NUANCE

Dragon NaturallySpeaking Preferred Mobile 9 gives small business users and PC enthusiasts the power to create documents, reports, emails and more - all by speaking!

$75 CASHBACK[5]

$500

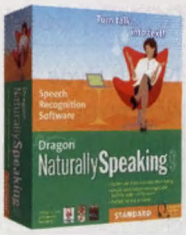
T9234 | YOU PAY **$575** BEFORE CASHBACK[5]

Also available: Dragon NaturallySpeaking Preferred Wireless (includes Plantronics CS60-USB wireless headset)

Dragon NaturallySpeaking Standard 9

NUANCE

Up to 99% accurate with no script reading or "voice training" required, so you can get started dictating right away.



$179 | T9229

BONUS $30 DARRELL LEA CHOCOLATE VOUCHER[6]

illustration purposes only, product may vary. See **manaccom.ht.com.au** for full terms and conditions. [5]Purchase a specially marked pack of an official version of Dragon NaturallySpeaking Preferred Mobile 9 or Dragon NaturallySpeaking Preferred Wireless 9 between 01/10/07 and 31/01/08 and receive $75 cashback, via redemption from Nuance. See **nuance.ht.com.au** for full terms and conditions. [6]Purchase a retail version of Dragon NaturallySpeaking Standard 9 between 01/11/07 and 31/01/08 and receive a $30 Darrell Lea Chocolate Voucher via redemption from Scholastic Media & Technology. See **scholastic.ht.com.au** for full terms and conditions. Redemption charges may apply to all offers.

Have a happy holiday from all of us at Harris Technology!

Gerry Diebert, Sales Consultant, Parramatta, NSW

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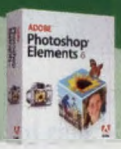

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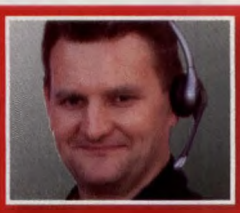

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